# CHAPTER 5. AIRPORT DATA FEATURES

The following paragraphs list the airport feature descriptions defining the specifications for each feature group and class. Utilize the specifications defined to ensure the data delivered is accurate and meets standards. Each feature is described by geometry type, feature group, information assurance level, requirements, positional accuracy, data capture rule, and the attributes required to provide the data to the FAA.

## 5.1. FEATURE DOCUMENTATION MINIMUMS

In addition to the general feature documentation outlined in paragraphs 1.5.2 and 1.5.3, certain features require additional or expanded documentation. Where required for a feature, the additional requirements are identified in the Documentation and Submission section of the feature description.

## 5.2. MULTIPLE INSTANCES OF FEATURES

## 5.3. FEATURE CLASS DESCRIPTION LEGEND

The following table identifies how each feature description is setup and provides information on what is contained within the section.

### 5.3.1. Paragraph Number and FeatureClassName

| | | | | |
|---|---|---|---|---|
| **Definition:** *Definition of feature.* | | | | |
| **Feature Group** | *The Feature Group of the element.* | | | |
| **Feature Class Name** | *The proper name of the Feature Class.* | | | |
| **Feature Type** | *The compliant geometry of element.* | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| *Compliant layer name.* | *Compliant layer description. [Siting]* | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | *Color code AutoCAD* | *Line type required* | *Line weight AutoCAD* | *Symbol type is user defined* |
| **MicroStation Standards** | *Color code MicroStation* | | *Line weight MicroStation* | |
| **Information Assurance Level** | *Security level credential* | | | |
| **Equivalent Standards** | **AIXM** | *AIXM equivalent of feature.* | | |
| | **FGDC** | *FGDC equivalent of feature.* | | |
| | **SDSFIE** | *SDSFIE equivalent of feature.* | | |
| **Documentation and Submission Requirements** | The required documentation for feature class elements. Minimum requirements are defined in paragraphs 1.5.2 and 1.5.3. Additional or expanded documentation requirements are located here. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Description of proper collection limits and requirements for feature class element.* | | | | |
| **Monumentation** | *Monumentation requirements.* | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | *Description of specific HSP location.* | | *Description of specific VSP location.* | |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | *Accuracy requirement* | *Accuracy requirement* | *Accuracy requirement* |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | *Coordinate resolution requirement* | *Coordinate resolution requirement* | |
| **Feature Attributes** | | | |
| **Attribute (Datatype)** | **Description** | | |
| *Name of attribute field* | *Description of attribute specifications* | | |

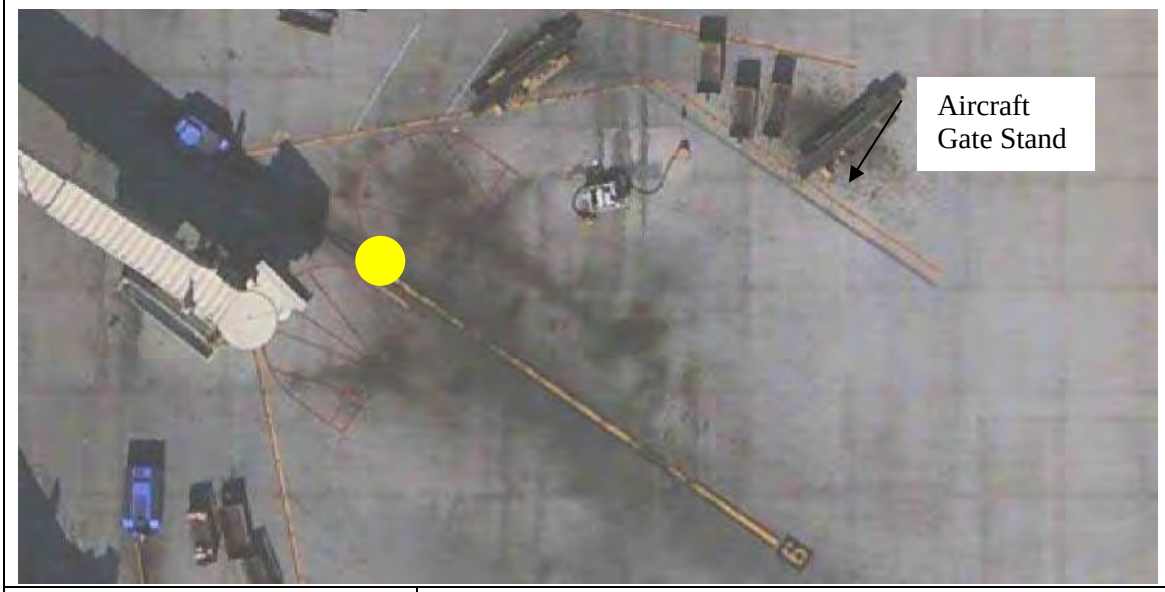
## 5.4. Group: AIRFIELD

### 5.4.1. Aircraft Gate Stand

| **Definition:** Geographic position of painted stand positions on the stand guidance line usually marked by a yellow crossbar according to aircraft type (e.g., for B-747, A-340). | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | AircraftGateStand | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-APRN-ACPK | Aircraft gate/stand parking area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ApronElement* | | Core |
| | **FGDC** | *AircraftGateStand* | | |
| | **SDSFIE** | *airfield_surface_site* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *Collect the aircraft gate stand as individual points with a separate feature for each defined location. If a generic location is defined, ensure the length and wingspan attributes cover all the appropriate aircraft expected to use the location.*




| **Monumentation** | No monumentation required. | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature. |
| gateStandType (Enumeration: codeGateStandType) | The type of aircraft gate/stand. |
| Status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| wingspan (Number) | The quantity representing the maximum wingspan which can be accommodated at the aircraft gate stand. |
| length (Number) | The overall length of the aircraft gate stand. |
| width (Number) | The overall width of the aircraft gate stand. |
| userFlag (String 254) | An 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. |
| pavementClassificationNumber | A number which expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load. [Source: AC 150/5335-5] |

| | |
|---|---|
| jetwayAvailability (boolean) | Indicates if a jetway or passenger loading bridge is available for use at the designated location. |
| towingAvailability (boolean) | Indicates if towing is available at the designated location. |
| dockingAvailability (boolean) | Indicates if docking light system is available at the designated location. |
| groundPowerAvailability (boolean) | Indicates the availability of ground power at the designated location. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.2. Aircraft Non Movement Area

**Definition:** Taxiways and apron (ramp) areas not under the control of air traffic.

| **Feature Group** | Airfield | | | |
|---|---|---|---|---|
| **Feature Class Name** | AircraftNonMovementArea | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-APRN-ANOM- | Aircraft non-movement area | | | |
| C-AIRF-DSRF-NMOV | Aircraft non-movement area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 0 | | | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *NonMovementArea* | | Core |
| | **FGDC** | *AircraftNonMovementArea* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *The non-movement area is an area where aircraft are not under the direct control of Air Traffic Control and are responsible for their own separation from aircraft, vehicles and objects. Two parallel yellow lines located side by side delineate the area. One line is dashed and the other is solid. The dashed side is the movement area and the solid side is the non-movement area. Compile this line as a single line drawn mid-way between the solid and dashed lines. If using symbolized line note direction of line in data capture to ensure solid side of line is on Non-movement area.*

**Aircraft non-movement area boundary line.**

| **Monumentation** | No monumentation required. | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.3. Air Operations Area

**Definition:** Air Operations Area is where security measures are enforced as specified in the airport security program. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas and any adjacent areas (such as general aviation areas) not separated by adequate security systems, measures, or procedures. [Source: 49 CFR Part 1542, Airport Security]

| **Feature Group** | Airfield |
|---|---|
| **Feature Class Name** | AirOperationsArea |
| **Feature Type** | Polygon |

**CADD Standard Requirements**

| Layer/Level | Description |
|---|---|
| C-AIRF-AHOA- | Air Operations Area |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *AirOperationsArea* | | Extension |
| | **FGDC** | *AirOperationsArea* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to the greatest horizontal extents as defined by the airport security plan.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.4. Airfield Light

| | |
|---|---|
| **Definition:** Any lighting located within or near an airport boundary that provides guidance for airborne and ground maneuvering of aircraft [Source: AIM, AC 150/5345 Series of ACs] | |
| **Feature Group** | Airfield |
| **Feature Class Name** | AirfieldLight |
| **Feature Type** | Point |

**CADD Standard Requirements**

| Layer/Level | Description | Layer/Level | Description |
|---|---|---|---|
| E-LITE-APPR- | Approach lights | V-LITE-RUNW- | Runway lights |
| E-LITE-DIST- | Distance and arresting gear markers and lights | V-LITE-TAXI- | Taxiway lights |
| E-LITE-LANE- | Hoverlane, taxilane, and helipad lights | V-LITE-THRS- | Threshold lights |
| E-LITE-OBST- | Obstruction lights | V-LITE-RUNW-TDZN | Runway Touchdown Zone lights |

| | | | |
|---|---|---|---|
| E-LITE-RUNW-EDGE | Runway edge lights | V-LITE-RUNW-CNTL | Runway Centerline lights |
| E-LITE-SIGN- | Taxiway guidance signs | E-LITE-RUNW-TDZN | Runway Touchdown Zone lights |
| E-LITE-TAXI-CNTL | Taxiway centerline lights | E-LITE-RUNW-CNTR | Runway Centerline lights |
| E-LITE-THRS- | Threshold lights | E-LITE-RUNW-DTGS1 | Runway Distance to go lights |
| V-LITE-APPR- | Approach lights | E-LITE-TAXI-EDGE | Taxiway edge lights |
| V-LITE-LANE- | Hoverlane, taxilane, and helipad lights | E-LITE-RNWY-GARD | Runway guard lights |
| V-LITE-OBST- | Obstruction lights | | |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 3 | Point | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Restricted | | |
| **Equivalent Standards** | **AIXM** | *LightElementExtension* | Extension |
| | **FGDC** | *AirfieldLight* | Extension |
| | **SDSFIE** | *airfield_light_point* | |
| **Documentation and Submission Requirements** | None | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect a point in the center of the object at the highest point. Other lights on the airfield such as apron lights, roof mounted lights etc. used for general illumination should be captured using the feature type UtilityPoint and delineated using the attribute codeUtilityType.*

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** |
| | | **Orthometric** / **Ellipsoidal** |
| | ± 3 ft | ± 5 ft / N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
| | Hundredth of arc second | Nearest foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Use this attribute to identify the use of the light such as Runway Edge Light, Taxiway Edge Light, Taxiway Centerline Light, etc. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| lightingType (Enumeration: codeLightingConfigurationType) | A description of the lighting system. Lighting system classifications are Approach; Airport; Runway; Taxiway; and Obstruction |
| color (Enumeration: codeColor) | The color of the airfield light. |
| luminescence (Integer) | The luminescence of the airfield light specified in candellas (cd). |

| | |
|---|---|
| pilotControlFrequency (Real) | The radio frequency used by pilots to control various airport lighting systems |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.5. ArrestingGear

**Definition:** Location of the arresting gear cable across the runway [Source: RTCA DO-272]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | ArrestingGear | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-ARST- | Runway Arresting Gear Location | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ArrestingGear* | | Core |
| | **FGDC** | *ArrestingGear* | | |
| | **SDSFIE** | *airfield_linear_safety_feature_line* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the arresting gear location as individual line objects, connecting the two fixed points of the arresting gear cable on each side of the runway.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | **N/A** | | **N/A** | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| airportFacilityType (Enumeration: codeOperationsType) | Type of airfield. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| owner (Enumeration: codeOwner) | Owner of the facility. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.6. Frequency Area

**Definition:** Area specifying the designated part of the surface movement area where a specific frequency is required by ATC or ground control. If there is only one frequency area for the airport, the polygon must cover the total air operations area. [Source: RTCA DO-272]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | FrequencyArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRF-FREQ- | Frequency Area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *Frequency* | | Core |
| | **FGDC** | *FrequencyArea* | | |
| | **SDSFIE** | *communications_groundwave_polygon_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to its greatest extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |

**Feature Attributes**

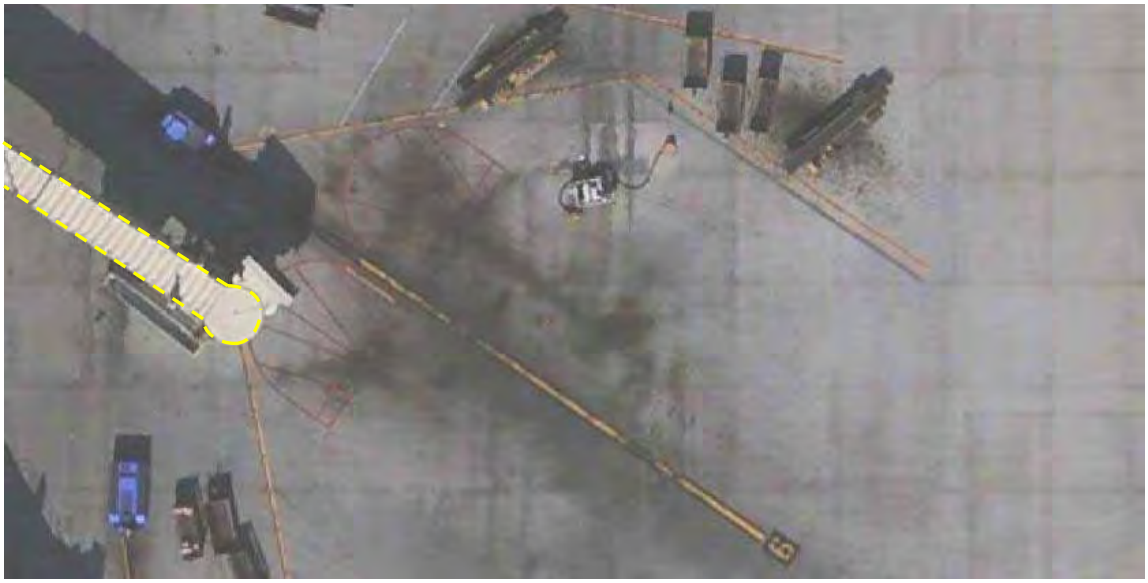
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| station (String 30) | Service or Station assigned to primary frequency (e.g., ATC Tower, Ground Control) [Source: RTCA DO-272] |
| frequency (Real) | Primary frequency used on frequency area (in MHZ). [Source: RTCA DO-272] |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.7. Passenger Loading Bridge

| | | | | |
|---|---|---|---|---|
| **Definition:** A bridge for loading/unloading access to airplanes for passengers and crew. | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | PassengerLoadingBridge | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRF-JETB- | Airport Jetbridge | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *PassengerLoadingBridge* | | Core |
| | **FGDC** | *PassengerLoadingBridge* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Outline of the boarding Bridge with the vertical on the top of the bridge.*



| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | Name, code or identifier used to identify the loading bridge. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| loadingBridgeType (Enumeration: CodeLoadingBridgeType) | Code indicating the type of loading bridge. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.8. Runway Centerline

| **Definition:** 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. [Source: AC 150/5300-13] | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayCenterline | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-CNTR- | Runway Centerline | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayMarking* | | Core |
| | **FGDC** | *RunwayCenterline* | | |
| | **SDSFIE** | *airfield_surface_centerline* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Determine the runway centerline as a continuous line along the centerline of the runway connecting the two runway end points.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 1 ft | ± 0.25 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Thousandth of arc second | Nearest tenth of a foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | The name of the feature. |
| runwayDesignator (String 7) | Designator of the runway based on the magnetic bearing and position in relation to parallel runways (e.g. 33R/15L) [Source: AC 150/5340-1] |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| isDerived (Boolean) | Indicates whether the centerline is derived or photo determined. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.9. Runway Helipad Design Surface

| **Definition:** A three-dimensional surface used in runway or heliport/helipad design [Source: AC 150/5300-13] | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayHelipadDesignSurface | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRF-DSRF-BLDR- | Building Restriction Line | | | |
| C-AIRF-DSRF-RSA- | Runway Safety Area | | | |
| C-AIRF-DSRF-RPZ- | Runway Protection Zone | | | |
| C-AIRF-DSRF-OFA- | Object Free Area | | | |
| C-AIRF-DSRF-OFZ- | Object Free Zone | | | |
| C-AIRF-DSRF-POFA- | Precision Object Free Area | | | |
| C-AIRF-DSRF-KEYH- | Key holes | | | |
| C-RUNW-CLRW- | Runway clearway | | | |
| C-HELI-DSRF- | Helipad design surface | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayFATODesignSurface* | | Extension |
| | **FGDC** | *RunwayHelipadDesignSurface* | | Extension |
| | **SDSFIE** | *airfield_imaginary_surface_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

| **Data Capture Rules:** *N/A* | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | N/A | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of a foot | |

**Feature Attributes**

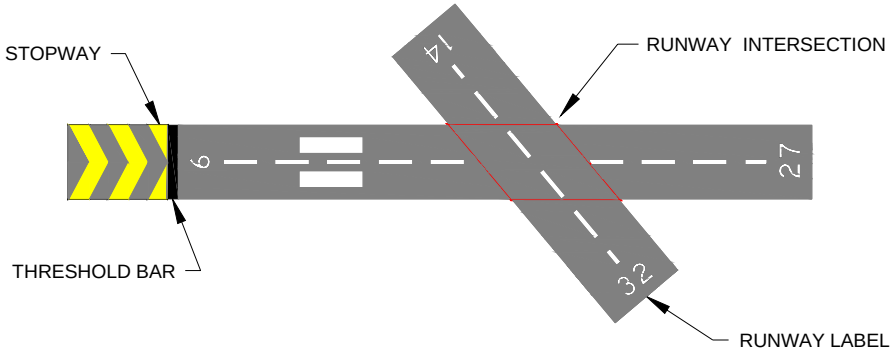
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. [Source: SDSFIE Feature Table] |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| designSurfaceType (Enumeration: codeDesignSurfaceType) | A description of the design surface |
| zoneUse (String 50) | A description of the use of the zone. |
| determination (String 255) | A formal declaration of the runway/helipad/heliport safety area condition with respect to standards and any requirement improvements [Source: FAA Order 5200.8 and AC 150/5390-2] |
| determinationDate (Date) | The date the safety area determination was approved [Source: FAA Order 5200.8 and AC 150/5390-2B] |
| zoneInnerWidth (Real) | The width of the narrow end of a trapezoidal shaped DesignSurface feature. This is normally the end that is closest to the landing surface [Source: AC 150/5300-13 and 150/5390-2B] |
| zoneOuterWidth (Real) | The width of the wide end of a trapezoidal shaped DesignSurface feature. This is normally the end that is furthest from the landing surface. |
| zoneLength (Real) | The length of a trapezoidal shaped DesignSurface feature. |
| slope (Real) | The low to high gradient within the airspace. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

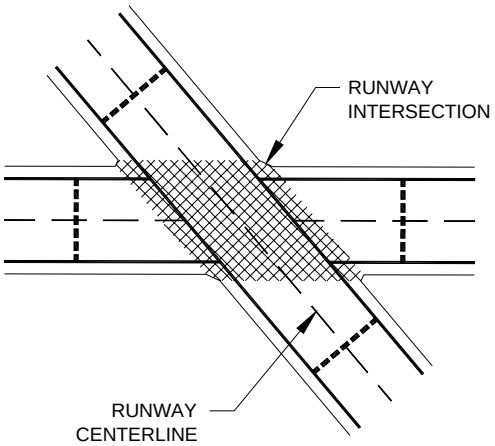
### 5.4.10. Runway Intersection

| **Definition:** The area of intersection between two or more runways [Source: RTCA DO-272] | |
|---|---|
| **Feature Group** | Airfield |
| **Feature Class Name** | RunwayIntersection |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-RUNW-INTS | Runway intersection |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayElement* | | Core |
| | **FGDC** | *RunwayElement* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *When two or more runways intersect, collect the area of overlap as an individual runway intersection polygon attached to the corresponding runway polygon(s) by way of shared lines. Define the polygon by the outer edge of the white runway edge marking or surface edge if no marking is present.*




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of a foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayDesignator1 (String 7) | Designator of the 1st intersecting runway based on the magnetic bearing and position in relation to parallel runways (e.g. 33R/15L). |
| runwayDesignator2 (String 7) | Designator of the 2nd intersecting runway based on the magnetic bearing and position in relation to parallel runways (e.g. 33R/15L). |
| runwayDesignator3 (String 7) | Designator of the 3rd intersecting runway based on the magnetic bearing and position in relation to parallel runways (e.g. 33R/15L). |
| pavementClassificationNumber | A number which expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load. [Source: AC 150/5335-5] |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.11. Runway LAHSO

**Definition:** 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. [Source: Order 7110.118]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayLAHSO | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-LAHS- | Runway land and hold short area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayMarking* | | Core |
| | **FGDC** | *RunwayLAHSO* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the LAHSO line as individual line objects delineated by the outer edge of the second painted line farthest from the intersecting runway.*

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of a foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| protectedRunwayDesignator (String 7) | Unique runway identifier for the airport of the runway, if any, being protected by the LAHSO (when the LAHSO precedes a runway intersection). Example 17L/35R. |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking |
| color (Enumeration: codeColor) | The color of the marking |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.12. Runway Element

**Definition:** A section of the runway surface. The runway surface can be defined by a set of non-overlapping RunwaySegment polygons for pavement management purposes. RunwayElements may overlap Runway and RunwayIntersection features. Use RunwayElement to model the physical runway pavement in terms of surface, material, strength and condition in greater detail than just as a single piece of pavement. [Source: AC 150/5335-5, AC 150/5320-12, AC 150/5320-17, AC 150/5320-6]

| | |
|---|---|
| **Feature Group** | Airfield |

| **Feature Class Name** | RunwayElement | | | |
|---|---|---|---|---|
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-SEGM- | Runway Element | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | None | | | |
| **Equivalent Standards** | **AIXM** | *RunwayElementExtension* | | Extension |
| | **FGDC** | *RunwayElement* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect runway elements as individual polygon objects. Where two or more runways intersect, identify, classify and report runway elements in the intersecting area only once.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Tenth of a foot | |

**Feature Attributes**

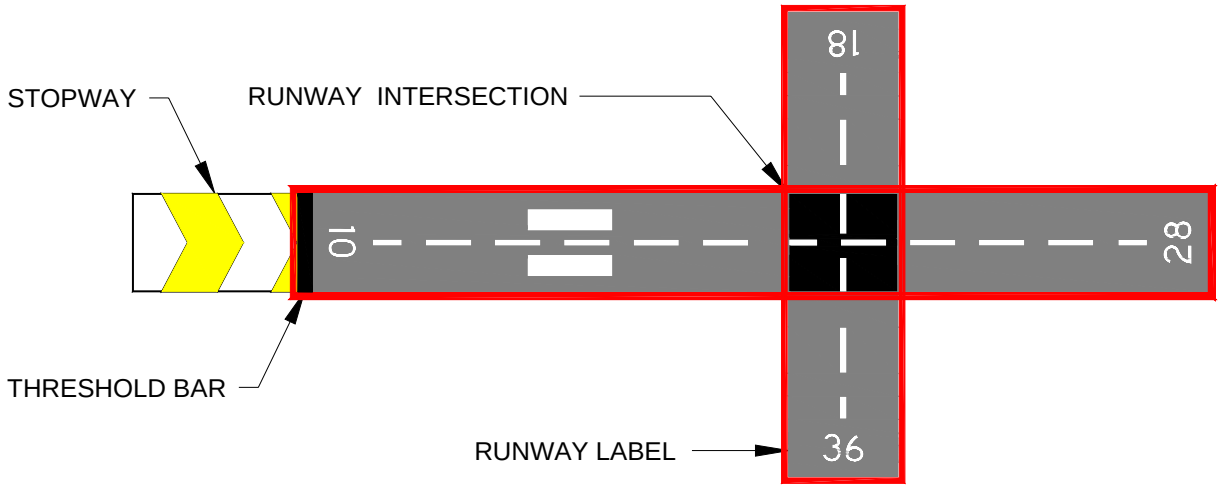
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status |
| userFlag (String 254) | An 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. |
| runwayDesignator (String 7) | Specify runway designator. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| pavementClassificationNumber | A number which expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load. [Source: AC 150/5335-5] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.13. Stopway

**Definition:** An area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff without causing structural damage to the airplane. It is designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | Stopway | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-STWY- | Runway stopway markings | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Stopway* | | Extension |
| | **FGDC** | *Stopway* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect a closed polygon encompassing the entire area designated as stopway and connect it to associated runway by means of a shared line. Stopways do not have shoulders and can be wider than the associated runway. Pay special attention to the guidance on Runway end, Stopway end, and Displaced Threshold Identification for proper location of the Stopway.*




| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of a foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Real) | The length of the designated stopway from the end of the runway |
| width (Real) | The overall width of the feature |
| userFlag (String 254) | An 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. |
| runwayEndDesignator (String 3) | Specify runwayEnd designator to identify which runway end the Stopway is on. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceMaterial (Enumeration: codeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.14. Taxiway Holding Position

| **Definition:** A designated position at which taxiing aircraft and vehicles will stop and hold position, unless otherwise authorized by the airport control tower [Source: RTCA DO-272] | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | TaxiwayHoldingPosition | | | |
| **Feature Type** | line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TAXI-HOLD-- | Holding Lines | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *TaxiHoldingPosition* | | Core |
| | **FGDC** | *TaxiwayHoldingPosition* | | |
| | **SDSFIE** | *None* | | |

| | | | | |
|---|---|---|---|---|
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *The painted markings extend across the taxiway and may consist of one of the following:*<br>• *Runway holding position markings are a set of four yellow lines and three spaces.*<br>• *The side with the two solid lines is the holding side.* | | | | |
| *ILS/MLS holding positions are marked using a set of two parallel yellow lines spaced four feet apart, in between these two lines and perpendicular to them there are sets of two parallel yellow lines.*<br>*Collect taxiway holding position line as a line at the outer edge of the painted marking (stop bar) farthest away from the corresponding runway.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (VARCHAR2(255)) | A description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayDesignator (String 7) | The designator for the approaching runway. |
| taxiwayDesignator (String 4) | The designator for the taxiway. |
| lowVisibilityCategroy (Enumeration: codeLowVisibilityCategory) | Code describing the Low visibility operation category of the TaxiwayHoldingPosition. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.15. Airport Sign

| | | | | |
|---|---|---|---|---|
| **Definition:** Signs at an airport other than surface painted signs. [Source: AC 150/5340-18] | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | AirportSign | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/ Level** | **Description** | | | |
| A-ELEV-SIGN- | Signage | | | |
| A-FLOR-SIGN- | Signage | | | |
| C-PVMT-SIGN- | Other signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 | Continuous | | User Defined |

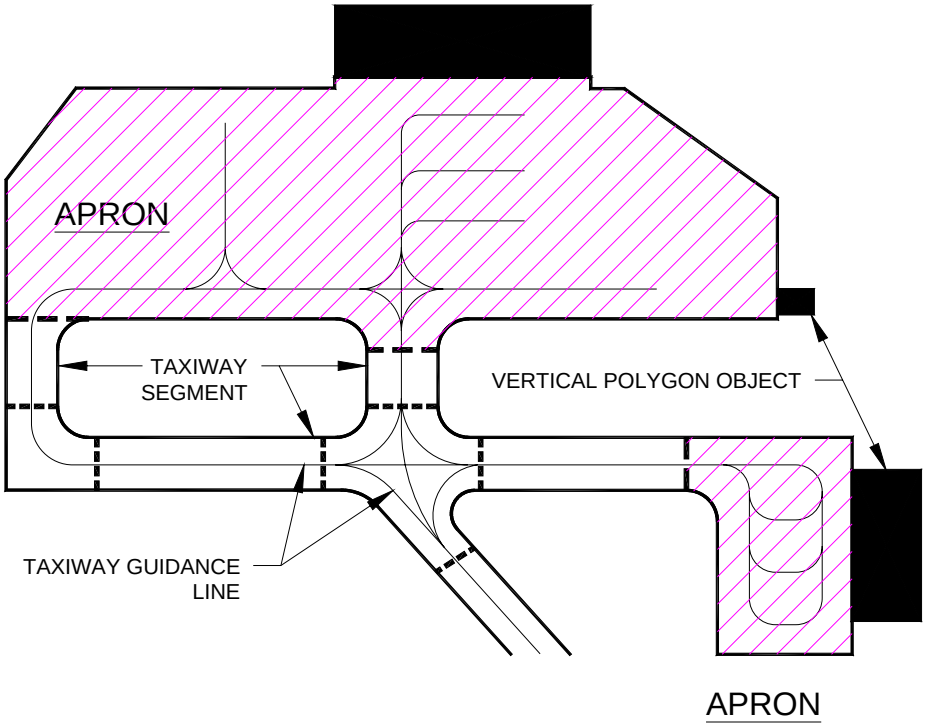
| | | | | |
|---|---|---|---|---|
| **MicroStation Standards** | 3 | | | |
| **Layer/ Level** | **Description** | | | |
| C-NGAS-SIGN- | Surface markers/signs | | | |
| V-LITE-DIST- | Distance and arresting gear markers | | | |
| V-STRM-SIGN- | Surface markers/signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | | User Defined |
| **MicroStation Standards** | 2 | | | |
| **Layer/ Level** | **Description** | | | |
| C-SSWR-SIGN- | Surface markers/signs | | | |
| C-APRN-SIGN- | Airfield signs on the apron | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | | User Defined |
| **MicroStation Standards** | 0 | | | |
| **Layer/ Level** | **Description** | | | |
| C-STRM-SIGN- | Surface markers/signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | | User Defined |
| **MicroStation Standards** | 7 | | | |
| **Layer/ Level** | **Description** | | | |
| V-LITE-SIGN- | Taxiway guidance signs | | | |
| C-TAXI-SIGN- | Airfield signs on the taxiway such as taxiway designator, hold short and directional signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | | User Defined |
| **MicroStation Standards** | 1 | | | |
| **Layer/ Level** | **Description** | | | |
| E-SPCL-TRAF- | Traffic signal system | | | |
| V-NGAS-SIGN- | Surface markers/signs | | | |
| V-SPCL-TRAF- | Traffic signal system | | | |
| V-SSWR-SIGN- | Surface markers/signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 4 | | 3 | |
| **Layer/ Level** | **Description** | | | |
| C-RUNW-SIGN- | Airfield signs on the runway such as distance remaining signs | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 8 | Continuous | | User Defined |
| **MicroStation Standards** | 9 | | | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirportSign* | | Extension |
| | **FGDC** | *AirportSign* | | Extension |
| | **SDSFIE** | *general_improvement_feature_point* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect point at the highest point on the center of the sign structure. When completing the feature attribution or signs containing both location and direction information. Provide* | | | | |

| | | | | |
|---|---|---|---|---|
| *the data for the sign with the location information. If necessary or desired to provide the directional information also, provide as a separate feature.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of sign structure | | Top of sign structure at center | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Tenth of foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2(50)) | The name of the feature. | | | |
| description (VARCHAR2(255)) | A description of the improvement feature. | | | |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. | | | |
| signType (Enumeration: codeSignTypeCode) | The type of sign. | | | |
| height (Real) | The overall height of the feature. | | | |
| message (String 254) | The text message that appears on the sign. | | | |
| userFlag (String 254) | An 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. | | | |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. | | | |

### 5.4.16. Apron

| | | | | |
|---|---|---|---|---|
| **Definition:** A defined area on an airport or heliport, paved or unpaved, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | Apron | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-APRN-OTLN | Apron outline | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 3 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ApronElementExtension* | | Extension |
| | **FGDC** | *Apron* | | Extension |
| | **SDSFIE** | *airfield_surface_type* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect a closed polygon to its greatest horizontal extents, encompassing apron areas.*




**Illustrates the collection of the airport apron.**

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (String 255) | Description of the feature |
| apronType (Enumeration: CodeApronType) | A classification of the typical use for the apron |
| numberOfTiedowns (Integer) | The approximate number of tiedowns in the surface. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceMaterial (Enumeration: | A code indicating the composition of the related surface [Source: NFDC] |

| | |
|---|---|
| codeSurfaceMaterial) | |
| pavementClassificationNumber | A number that expresses the relative load-carrying capacity of a pavement in terms of a standard single wheel load [Source: AC 150/5335-5] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| fuel (Enumeration: codeFuel) | Code indicating the types of fuel available at the apron or delverable to the apron. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.17. Deicing Area

**Definition:** An 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 or ice and accumulation of snow or slush for a limited period of time [Source: AC 150/5300-13].

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | DeicingArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-APRN-DEIC | Aircraft Deicing Area | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 0 | | 1 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *DeicingArea* | | Core |
| | **FGDC** | *DeicingArea* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Deicing areas may consist of a single or multiple polygons, capture the outer edges of area(s). Deicing areas can be remote sites from the terminal buildings or in the terminal area.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | The name of the feature. |
| description (VARCHAR2(255)) | A brief description of the area and any special characteristics. |
| userFlag (String 254) | An operator-defined work area. This attribute can be used by |

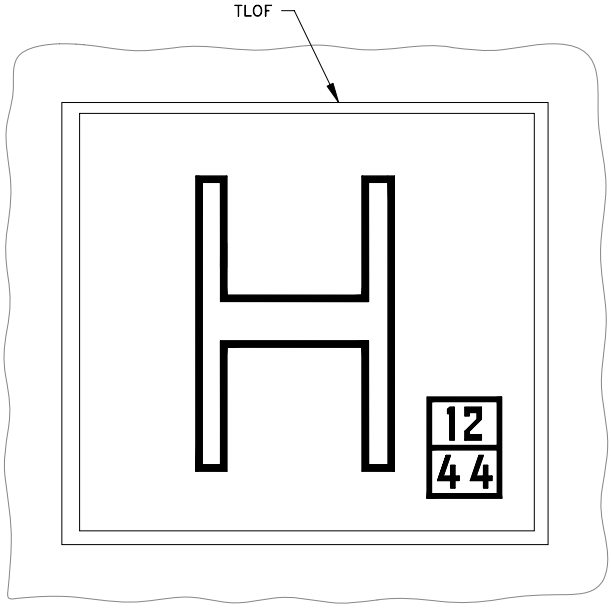
| | |
|---|---|
| | the operator for user-defined system processes. It does not affect the subject item's data integrity and should not be used to store the subject item's data. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.18. Touch Down Lift Off

| | | | | |
|---|---|---|---|---|
| **Definition:** A load-bearing, generally paved area, normally centered in the Final Approach and Takeoff Area (FATO), on which a helicopter lands or takes off. The Touchdown and Lift-off Area (TLOF) is frequently called a helipad or helideck. | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | TouchDownLiftOff | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-HELI-TLOF | Helipad take off and landing area | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *TouchDownLiftOff* | | Core |
| | **FGDC** | *TouchDownLiftOff* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *Collect a closed polygon in the center of the white paint stripes along the outer edges of the TLOF as a solid line and labeled "HELIPAD." Collect the outer edges of the TLOF pavement when there are no outer paint stripes. Collect all TLOFs located on the aircraft movement areas at compiler's discretion.*




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | The name of the feature. |
| description (VARCHAR2(255)) | A brief description of the area and any special characteristics. |
| length (Real) | The overall length of the TLOF. |
| width (Real) | The overall width of the TLOF. |
| userFlag | An 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. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |

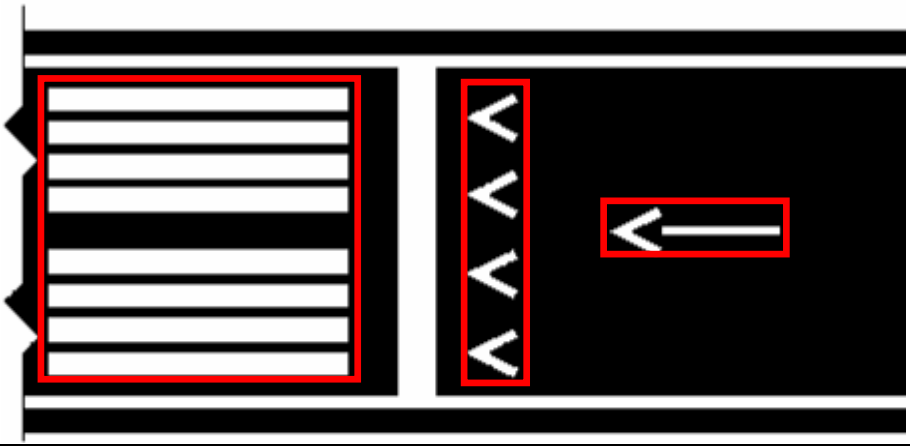
| | |
|---|---|
| designHelicopter (String20) | A generic helicopter that reflects the maximum weight, maximum contact load/minimum contact area, overall length, rotor diameter, etc. of all helicopters expected to operate at the heliport. [Source: AC 150/5390-2] |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| gradient (real) | The gradient of the TLOF surface designed to provide positive drainage. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.19. Marking Area

| | | | | |
|---|---|---|---|---|
| **Definition:** Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. An element of marking whose geometry is a polygon. [Source: AC 150/5340-1 and RTCA DO-272] | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | MarkingArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-HELI-IDEN- | Heliport numbers and letters | | | |
| C-RUNW-DIST- | Fixed distance markings | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Layer/Level** | **Description** | | | |
| C-HELI-TDZM- | Touchdown zone markers | | | |
| C-RUNW-NUMB- | Runway numbers and letters | | | |
| C-RUNW-TDZM- | Touchdown zone markers | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *airfield_surface_marking_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *Collect the runway markings as closed polygons to encompass and delineate the individual markings.*



| **Monumentation** | No monumentation required. | |
|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | NA | NA |
| | NA | NA |

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 2 ft | ± 3 ft | N/A |

| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
|---|---|---|
| | Hundredth of arc second | Nearest tenth of foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (VARCHAR2(255)) | A description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking |
| color (Enumeration: codeColor) | The color of the marking |
| userflag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.20. Marking Line

| **Definition:** Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. An element of marking whose geometry is a line. [Source: AC 150/5340-1 and RTCA DO-272] | |
|---|---|
| **Feature Group** | Airfield |
| **Feature Class Name** | MarkingLine |
| **Feature Type** | 3D Line |

| CADD Standard Requirements | | | |
|---|---|---|---|
| **Layer/Level** | **Description** | **Layer/Level** | **Description** |
| C-APRN-CNTR- | Centerlines | C-PADS-OTLN- | Pad - outlines |
| C-APRN-HOLD- | Holding position markings | C-RUNW-CNTR-MARK | Centerline markings |
| C-APRN-MRKG- | Apron markings | C-RUNW-SHLD- | Shoulder markings |
| C-APRN-SECU- | Security zone markings | C-RUNW-SHLD- | Runway Shoulder |
| C-APRN-SHLD- | Shoulder stripes | C-RUNW-SIDE- | Side stripes |
| C-HELI-BLST- | Helipad blast pad and stopway markings | C-TAXI-CNTR-MARK | Centerline markings |
| C-HELI-CNTR-MARK | Centerline markings | C-TAXI-EDGE- | Edge markings |
| C-HELI-DIST- | Fixed distance markings | C-TAXI-SHLD- | Shoulder transverse stripes |
| C-HELI-SIDE- | Side stripes | V-PVMT-MRKG- | Pavement markings |
| C-OVRN-CNTR- | Centerlines | C-PVMT-MRKG-WHIT | Roadway markings (white) |
| C-OVRN-SHLD- | Shoulder markings | C-PVMT-MRKG-YELO | Roadway markings (yellow) |
| C-PADS-CNTR- | Centerlines | | |

| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
|---|---|---|---|---|
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Restricted | | |
| **Equivalent Standards** | **AIXM** | *MarkingElement* | Core |
| | **FGDC** | *Marking* | |
| | **SDSFIE** | *airfield_surface_marking_line* | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect a line through the middle of the paint line.*

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** |
| | | **Orthometric** / **Ellipsoidal** |
| | ± 2 ft | ± 3 ft / N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
| | Hundredth of arc second | Nearest tenth of foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (VARCHAR2(255)) | A description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking |

| | |
|---|---|
| color<br>(Enumeration: codeColor) | The color of the marking |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.4.21. Movement Area**

| | | | | |
|---|---|---|---|---|
| **Definition:** Runways, taxiways, and other areas of an airport used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas [Source: 14 CFR Part 139] | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | MovementArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-SECR-SECA | Airfield security area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *airfield_surface_marking_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect each portion of the movement area as a closed polygon to its greatest horizontal extents. Multiple non-overlapping polygons may be used to adequately model the areas.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | NA | | NA | |
| | NA | | NA | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest tenth of foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | Name of the feature |
| description (VARCHAR2(255)) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |

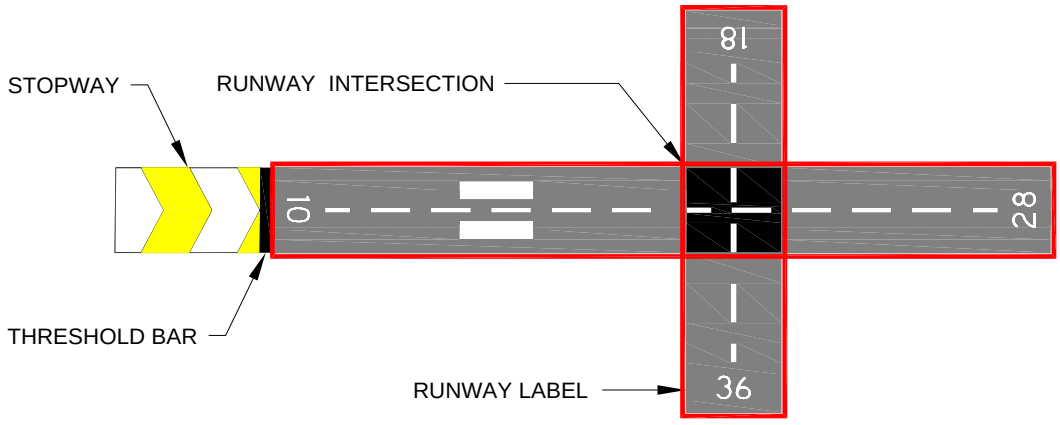
| | |
|---|---|
| userFlag (String 254) | An operator-defined work area. This attribute can be used by the operator for user-defined system processes. It does not affect the subject item's data integrity and should not be used to store the subject item's data. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.22. Runway

**Definition:** A defined rectangular area on an airport prepared for the landing and takeoff of aircraft. [AC 150/5300-13]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | Runway | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-EDGE- | Airfield runway edges | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 3 | |
| **Information Assurance Level** | Resticted | | | |
| **Equivalent Standards** | **AIXM** | *Runway* | | Core |
| | **FGDC** | *Runway* | | |
| | **SDSFIE** | *airfield_surface_site* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *In addition to the requirements for runway end collection, capture the runway as a closed polygon limited by the outer edge of the runway edge paint (shoulder side), excluding runway shoulders or stopways. If there are no painted runway edge markings, capture and report the runway as a polygon at its narrowest dimension based on the existing pavement.*




**The red lines encompassing the runway illustrate the collection of the runways at an airport.**

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

**Feature Attributes**

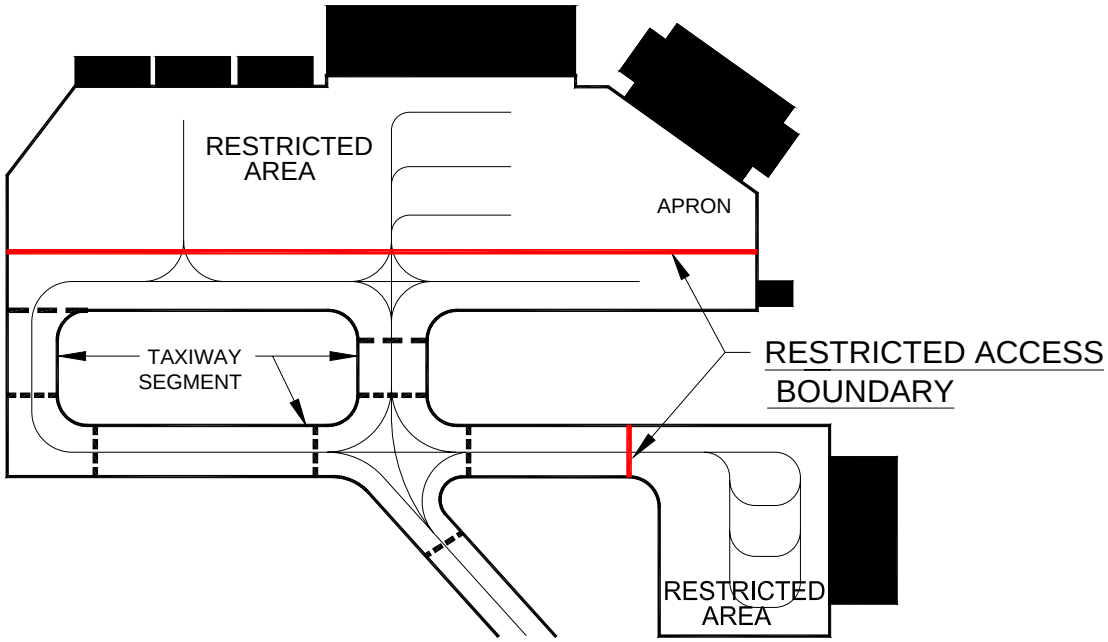
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayDesignator (String 7) | Designator of the runway based on the magnetic bearing and position in relation to parallel runways (e.g. 33R/15L) [Source: AC 150/5340-1] |
| width (Real) | A 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. If the runway width is less than 100 feet, the width is rounded up to the nearest 5 feet. If the runway width is more than 100 feet, the width is rounded to the nearest 10 feet. If the rounded width is different from the published width, NGS should be contacted for further advice. [Source: NGS] |
| length (Real) | The 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. |
| userFlag (String 254) | An 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. |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| pavementClassificationNumber | A number that expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load [Source: AC 150/5335-5] |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.23. Restricted Access Boundary

| **Definition:** A restricted area boundary identifies areas strictly reserved for use by authorized personnel only. | |
|---|---|
| **Feature Group** | Airfield |
| **Feature Class Name** | RestrictedAccessBoundary |
| **Feature Type** | Line |

| CADD Standard Requirements | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| C-AIRF-SECR-RSTR | Restricted access boundary | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *SecurityElement* | | Extension |
| | **FGDC** | *RestrictedAccessBoundary* | | Extension |
| | **SDSFIE** | *Military_restricted_access_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect a line through the center of each marking to its greatest extents. Restricted access paint lines are either dashed white lines or alternating white/red/white solid lines.*




**Illustrates the collection of a restricted area boundary.**

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | NA | NA | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | A common name for the restricted area. |
| description (VARCHAR2(255)) | A description of the restricted area. |

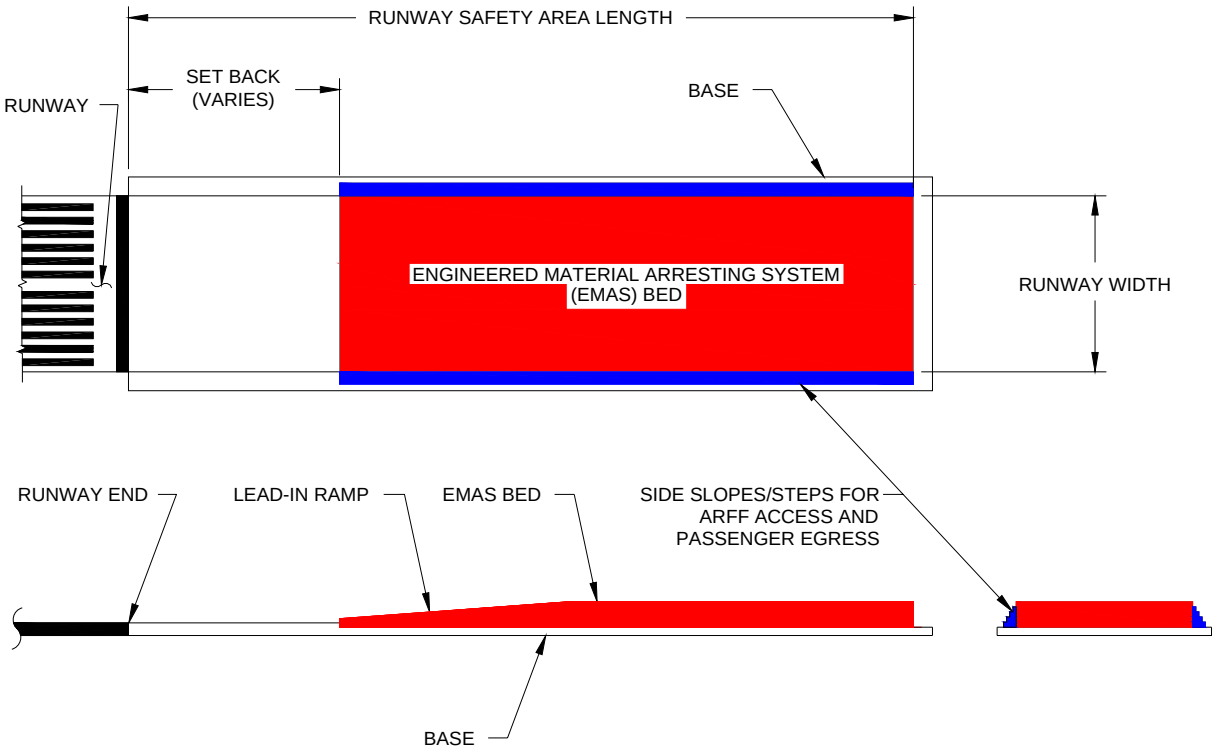
| | |
|---|---|
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An operator-defined work area. This attribute can be used by the operator for user-defined system processes. It does not affect the subject item's data integrity and should not be used to store the subject item's data. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.24. Runway Arresting Area

| | | | | |
|---|---|---|---|---|
| **Definition:** Any 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. [Source: AC 150/5220-22]. | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayArrestingArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-ARSTC-RUNW-ARST-AIDS-CRIT | | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *ArrestingGear* | | Core |
| | **FGDC** | *RunwayArrestingArea* | | |
| | **SDSFIE** | *airfield_linear_safety_feature_line* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *Collect a closed polygon limited by the chevron markings identifying the area.*




**Illustrates the collection of the Runway Arresting Area.**

| **Monumentation** | No monumentation required. | |
|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoid** |
| | ± 3 ft | ± 5 ft | N/A |

| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
|---|---|---|
| | Hundredth of arc second | Nearest tenth of foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | A common name for the arresting area. |
| description (VARCHAR2(255)) | A description of the arresting area. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Real) | The overall length of the feature. |
| width (Real) | The overall width of the feature. |
| userFlag (String 254) | An 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. |
| surfaceMaterial (Enumeration: codeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |

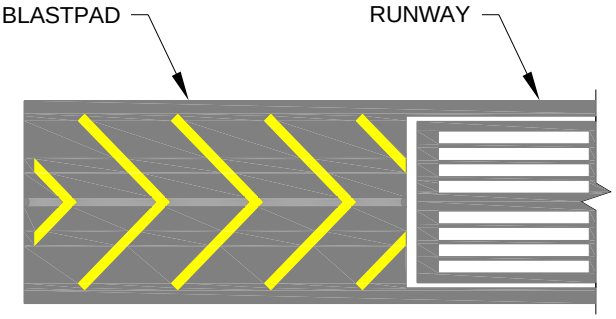
| | |
|---|---|
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| setback | The distance the EMAS begins beyond the end of the runway. |

### 5.4.25. Runway Blast Pad

**Definition:** A specially prepared surface placed adjacent to the end of a runway to eliminate the erosive effect of the high wind forces produced by airplanes at the beginning of their takeoff rolls.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayBlastPad | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-BLST | Runway blast pad | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 3 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayBlastPad* | | Core |
| | **FGDC** | *RunwayBlastPad* | | |
| | **SDSFIE** | *airfield_linear_safety_feature_line* | | |
| **Documentation and Submission Requirements** | No additional documentation is required. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect a closed polygon to the extents of the chevrons marking the area.*




**Illustrates the collection of a blast pad.**

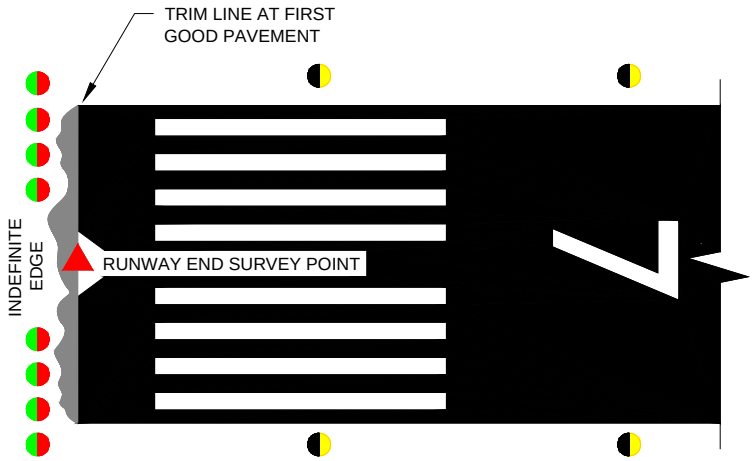
| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation is required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 2 ft | ± 3 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

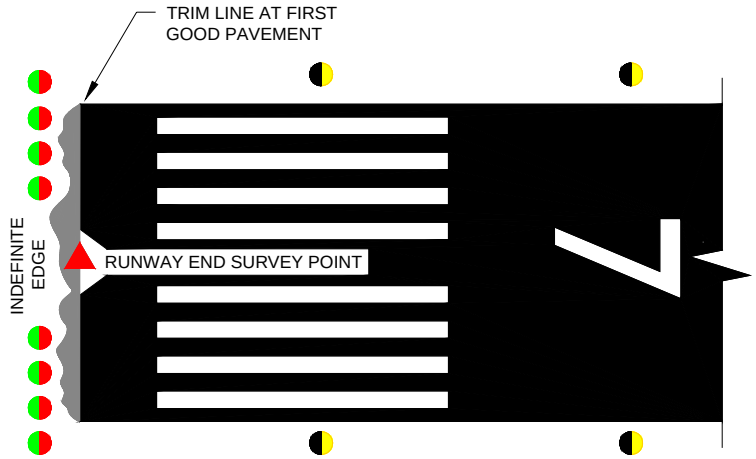
| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2(50)) | Name of the feature. |
| description (VARCHAR2(255)) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Integer) | The length of clearway as measured. Compare the measure value to the value reported in the government flight information publications. |
| userFlag (String 254) | An 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. |
| pavementClassificationNumber | A number that expresses the relative load carrying capacity of a pavement in terms of a standard single wheel load [Source: AC 150/5335-5] |
| runwayEndDesignator (String 3) | Specify runwayEnd designator to identify which runway end the Blast Pad is on. |
| surfaceCondition (Enumeration: codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| surfaceMaterial (Enumeration: codeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.26. Runway End

| **Definition:** The end of the runway surface suitable for landing or takeoff runs of aircraft. Runway Ends describe the approach and departure procedure characteristics of a runway threshold. The Runway End is the same as the runway threshold when the threshold is not displaced. | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayEnd | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-ENDP- | Runway endpoint | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayDirectionExtension* | | Extension |
| | **FGDC** | *RunwayEnd* | | |
| | **SDSFIE** | *Airfield_surface_site* | | |
| **Documentation and Submission Requirements** | *In addition to the requirements of paragraphs 1.5.2 and 1.5.3, document the selected location using four digital photographs:* | | | |

<table>
<tr><td></td><td>  <br>Photograph Type #1<br>(Eye Level).<br>Photo taken from above the mark, showing an area around the mark about 1 meter in diameter.</td><td>  <br>Photograph Type #2<br>(Approach).<br>Photo showing tripod over the mark in foreground and approach in the background.</td></tr>
<tr><td></td><td>  <br>Photograph Type #3<br>(Across Runway).<br>Photo taken from the side of the runway looking across the end of the runway, with a tripod or arrow indicating the end point; include any features used to identify the runway end.</td><td>  <br>Photograph Type #4<br>(Close-in).<br>Close-up photo depicting nail, washer and markings.</td></tr>
<tr><td>Related Features</td><td colspan="2"></td></tr>
<tr><td colspan="3">Data Capture Rule: Establish the runway end on the runway centerline at the physical end, or specified location based on other supporting features. The area between the runway end and the displaced threshold should be marked with white arrows.</td></tr>
<tr><td>Monumentation</td><td colspan="2">When the ends of the runway surface have been determined, mark the positions using a nail and washer with the setting company’s name and year inscribed, chisel square, or paint if possible with a distinctive inscription to ensure future identification.</td></tr>
<tr><td rowspan="2">Survey Point Location</td><td colspan="2">Concrete Runway and No Aligned Taxiway</td></tr>
<tr><td colspan="2">Survey Point Locator is the limit of construction or the trim line at the first good pavement, unless these lines are located on the approach side of runway end lights. Supporting features include:<br>• Runway end lights near runway end<br>• Threshold bar near runway end (usually present only if non-runway pavement is aligned with runway)<br>• Threshold lights near runway end and usually in same fixture as runway end lights (if threshold not displaced)</td></tr>
</table>

| | |
|---|---|
| | • Runway number near runway end (if threshold not displaced)<br>• Runway edge lights (white or amber) extending to runway end<br><br>Comments: The limit of construction usually defines the survey point for the ends of concrete runways. A surface discontinuity defines the limit of construction. Do not confuse the runway end with the end of a blast pad, stopway, or other non-runway surface. Refer to the figure below for an example of this scenario.<br><br>  <br>  |
| | **Paved/Non-concrete Runway and No Aligned Taxiway**<br>Survey Point Locator is the limit of construction or the trim line at first good pavement, unless these lines are located on approach side of runway end lights. Supporting features include:<br>• Runway end lights near runway end<br>• Threshold bar near runway end (usually present only if non-runway pavement is aligned with runway)<br>• Threshold lights near runway end and usually in same fixture as runway end lights (if threshold not displaced)<br>• Runway number near runway end (if threshold not displaced)<br>• Runway edge lights (white or amber) extending to runway end |

| | |
|---|---|
| | Comments: While the limit of construction is the first choice, a trim line at first good pavement is usually required to define the ends of paved, non-concrete runways since the ends of these surfaces are almost always crumbling and/or not orthogonal to the runway centerline to some degree. Refer to the figures above and below as examples.<br>  <br><br>  |
| | **Unpaved Runway and No Aligned Taxiway**<br>Survey Point Locator is the trim line 10 feet on touchdown side of inboard runway end lights, a trim line connecting outboard runway end lights, a trim line 10 feet on touchdown side of inboard runway end day markers, or a trim line connecting outboard runway end day markers. Supporting features are threshold lights near threshold (if runway lighted and threshold not displaced)<br><br>Comments: If no lights or markers exist, the existence of a runway is in question since by FAA definition, a runway is a defined area. Not all areas used for takeoff/landings are runways. |




**Paved Runway and Aligned Taxiway**

Survey Point Locator is the approach side of threshold bar unless this line is on the approach side of runway end lights and threshold is not displaced. Additionally, use the trim line connecting outboard runway end lights or the runway side of yellow demarcation bar provided this line is not located on approach side of runway end lights. The yellow demarcation bar usually occurs only if a displaced threshold and an aligned taxiway or stopway both exist.)

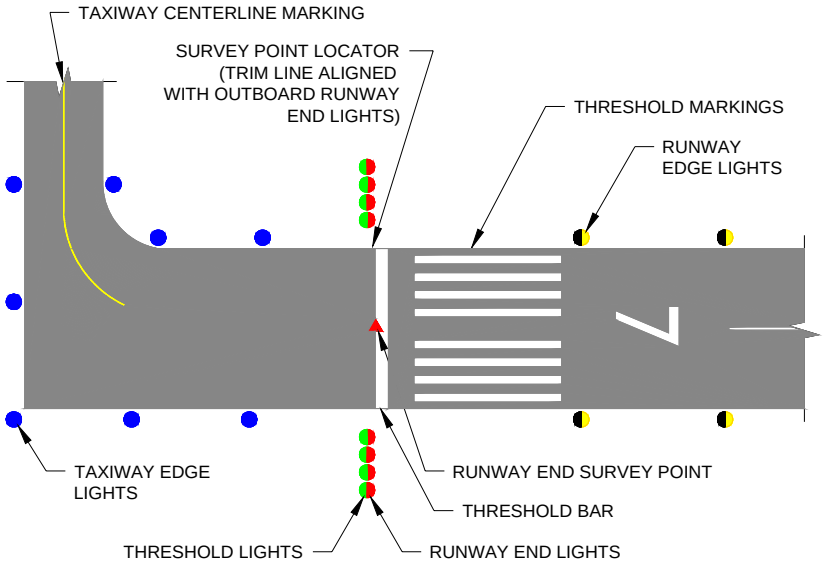
Supporting features include:

- Threshold lights near runway end and usually in same fixture as

runway end lights (if threshold not displaced)

- Runway number near runway end (if threshold not displaced)
- Yellow aligned taxiway painting on approach side of threshold bar
- Taxiway edge lights between runway end and taxiway end
- Absence of runway side stripes between runway end and end of pavement on Precision Instrument Runways

Comments: Use caution, especially on smaller, poorly marked airports, not to confuse a displaced threshold and a runway end for a runway with an aligned taxiway.




NOTES:

1. THIS GRAPHIC IS NOT TO SCALE. FEATURES ARE SYMBOLIZED AND INTENDED ILLUSTRATION PURPOSES ONLY.

2. RUNWAY/STOPWAY SURVEYS SHOULD BE DISCUSSED WITH APPROPRIATE AIRPORT AUTHORITIES.

3. SURVEY POINT LOCATOR:
   - TRIM LINE ALIGNED WITH OUTBOARD RUNWAY END LIGHTS IF NO THRESHOLD BAR OR IF APPROACH SIDE OF THRESHOLD BAR IS IN APPROACH SIDE OF RUNWAY END LIGHTS.

4. SUPPORTING FEATURES
   - RUNWAY END LIGHTS NEAR THRESHOLD BAR
   - THRESHOLD MARKINGS NEAR RUNWAY END LIGHTS
   - RUNWAY NUMBER NEAR RUNWAY END LIGHTS
   - TAXIWAY EDGE LIGHTS BETWEEN RUNWAY END AND END OF PAVEMENT

5. COMMENTS:
   - NONSTANDARD MARKINGS FOR RUNWAY WITH ALIGNED TAXIWAY.
   - THRESHOLD BAR EXTENDS TO APPROACH SIDE OF RUNWAY END LIGHTS
   - RUNWAY CANNOT EXTEND TO APPROACH SIDE OF RUNWAY END LIGHTS

| | Unpaved Runway and Aligned Taxiway | | |
|---|---|---|---|
| | Survey Point Locator is the trim line connecting outboard runway end lights or the trim line connecting outboard runway end day markers. Supporting features include threshold lights near threshold (if threshold not displaced) or runway/taxiway edge lights (if runway is lighted).<br><br>Comments: Unpaved runways with aligned taxiways are unusual. If this situation is suspected, verify any area immediately adjacent to, and aligned with, the runway is used for taxi onto the runway and is marked appropriately for this purpose. | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1.00 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of a foot | |

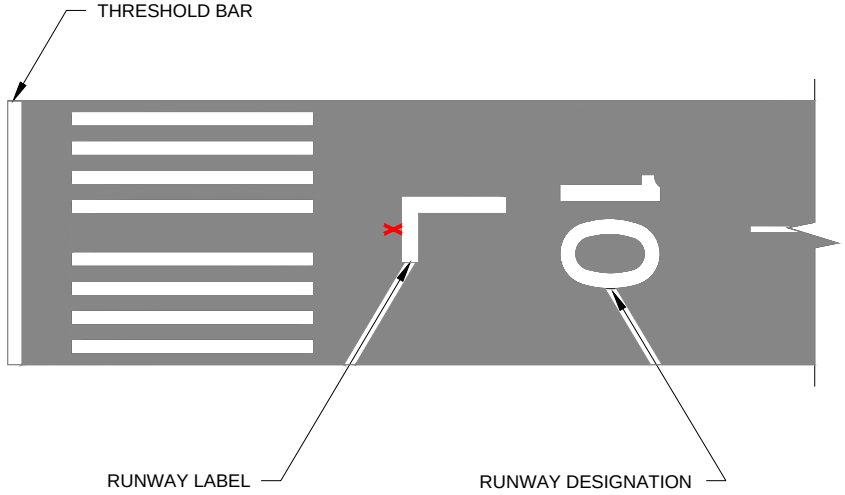
**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (VARCHAR2(255)) | Description of the feature |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| approachCategory (Enumeration: codeApproachCategory) | A grouping of aircraft based on 1.3 times their stall speed in the landing configuration at the certificated maximum flap setting and maximum landing weight at standard atmospheric conditions [Source: AC 150/5300-13] |
| approachGuidance (Enumeration: codeApproachGuidance) | The type of approach guidance in use for the runway end. |
| accelerateStopDistanceAvail (Integer) | The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff [Source: AC 150/5300-13] |
| magneticBearing (Real) | Magnetic runway bearing corresponding to threshold location valid at the day of data generation [Source: RTCA DO-272] |
| trueBearing (Real) | True bearing corresponding to the landing direction [Source: ICAO Annex 14] |
| designGroup (Enumeration: codeDesignGroup) | A grouping of airplanes based on wingspan and or tailheight, whichever is greatest. [Source: AC 150/5300-13] |
| displacedDistance (Integer) | The distance from the runway end to the landing threshold. When the thresholdType is normal, displacedDist = 0. |
| landingDistanceAvailable (Integer) | The runway length declared available and suitable for a landing airplane. |
| runwayEndDesignator | The designator for the runway end (i.e. 32L) |
| runwaySlope (Real) | Runway slope corresponding to landing direction [Source: RTCA DO-272] |
| takeOffDistanceAvailable | The takeoff run available plus the length of any remaining runway clearway beyond the far end of the takeoff run available. [Source: AC 150/5300-13] |

| | |
|---|---|
| takeOffRunwayAvailable | The runway length declared available and suitable for the ground run of an airplane taking off [Source: AC 150/5300-13] |
| touchdownZoneSlope | The longitudinal slope of the first 3000 feet of the runway beginning at the threshold. |
| touchdownZoneElevation | The highest elevation in the Touchdown Zone. The Touchdown Zone is the first 3,000 feet of the runway beginning at the threshold. [Source: FAA Order 8260.3] |
| thresholdType (enumeration: codeThresholdType) | A description of the landing threshold: either normal or displaced. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.27. Runway Label

| **Definition:** The bottom center position of the runway designation marking | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | RunwayLabel | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-IDEN-MARK | Runway numbers and letters | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayMarking* | Core | |
| | **FGDC** | *RunwayLabel* | | |
| | **SDSFIE** | *airfield_buffer_zone_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the runway label as an individual point object.* | | | | |
| **Monumentation** | No monumentation required. | | | |

| | | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal and Vertical**<br>Capture the point located at the base of each painted runway number on the runway centerline. If a runway number is not painted on the runway, identify and collect a point approximately 100 feet from the threshold as the runway label position.<br>  <br><br>**Illustrates the collection of the runway label.** | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayEndDesignator (String 3) | The designator of the associated runway |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.28. Runway Safety Area Boundary

| **Definition:** The boundary of the Runway Safety Area (RSA). | |
|---|---|
| **Feature Group** | Airfield |
| **Feature Class Name** | RunwaySafetyAreaBoundary |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-RUNW-SAFT- | Runway Safety Area |

| | Color | Line type | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 5 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *RunwaySafetyAreaBoundary* | | Extension |
| | **FGDC** | *RunwaySafetyAreaBoundary* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect as a closed polygon to its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | NA | | NA | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest tenth of foot | |

**Feature Attributes**

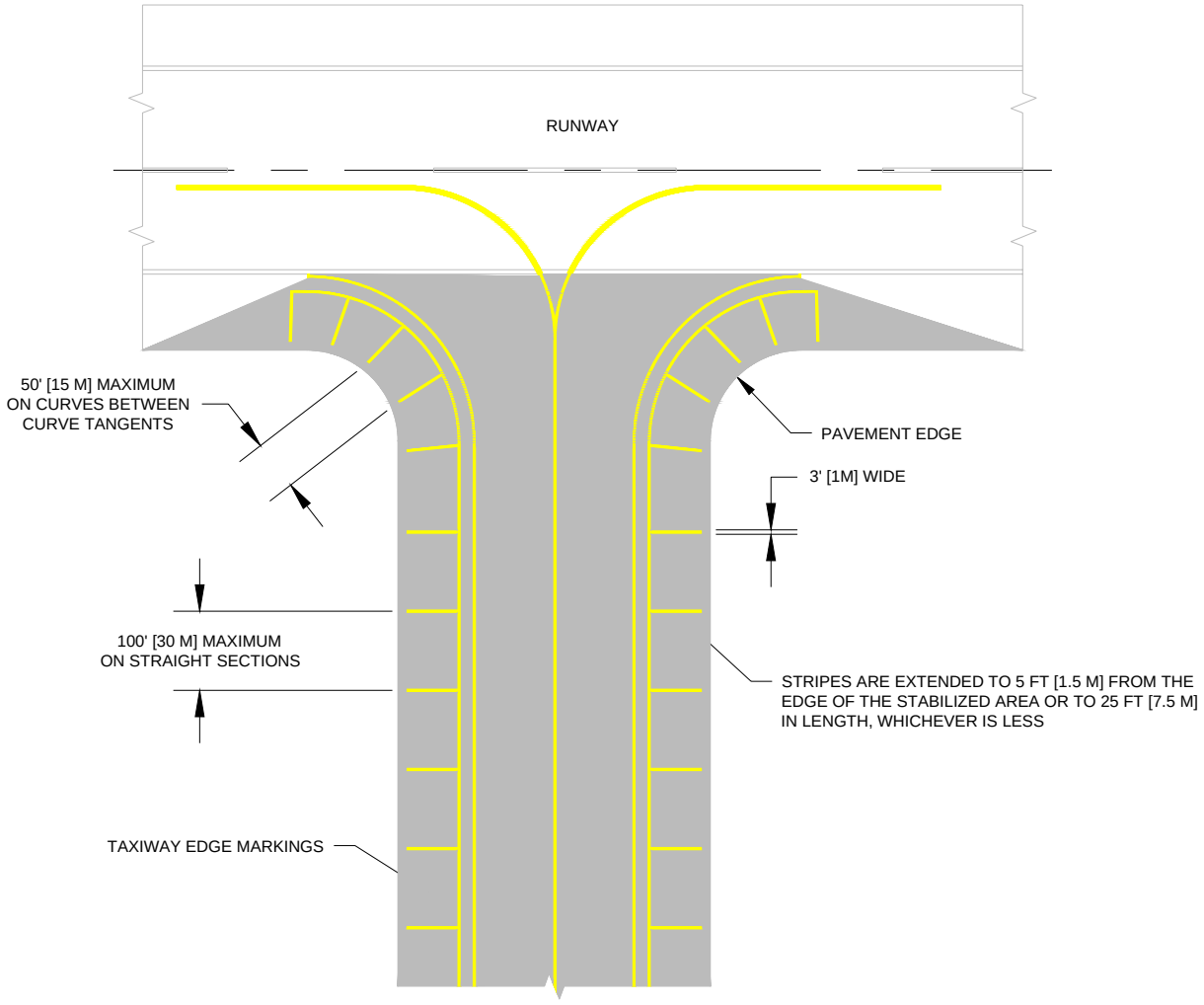
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature |
| description (VARCHAR2 (255)) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayEndDesignator (String 3) | Specify runwayEnd designator |
| determinationDate (Date) | The date the RSA determination was approved |
| determination (VARCHAR2 (255)) | A formal declaration of the RSA condition with respect to standards and any requirement improvements |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.29. Shoulder

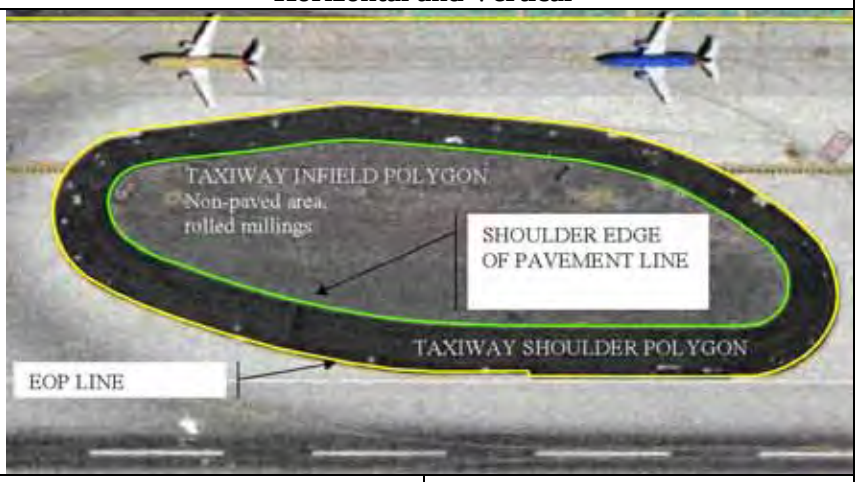
| **Definition:** An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement, enhance drainage, and blast protection. [Source: AC 150/5300-13] | |
|---|---|
| **Feature Group** | Airfield |
| **Feature Class Name** | Shoulder |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-HELI-SHLD- | Shoulder |
| C-PADS-SHLD- | Shoulders with annotation |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayElement* | | Core |
| | **FGDC** | *RunwayElement* | | |
| | **SDSFIE** | *Airfield_surface_site* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect non-intersecting shoulders as individual polygons. Collect intersecting shoulders as multiple polygons when intersected by taxiways, intersecting runway, or stopway/clearway.*




| | |
|---|---|
| **Monumentation** | No monumentation required |

| | | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal and Vertical** | | |
| |  | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

**Feature Attributes**

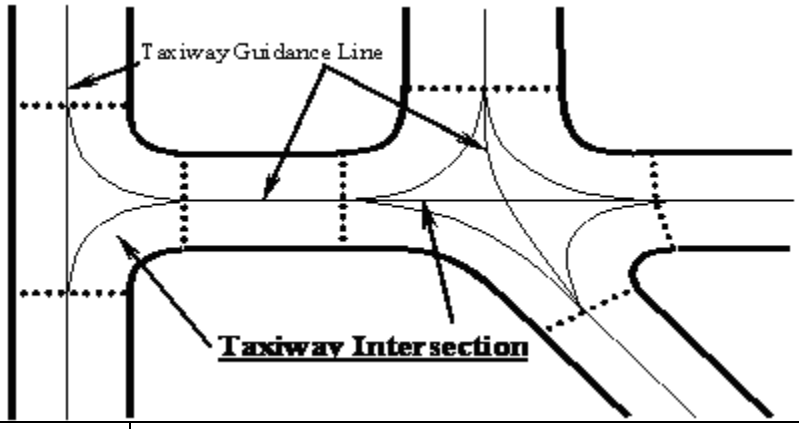
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature |
| shoulderType (Enumeration: codeShoulderType) | Code for whether this is a runway shoulder or taxiway shoulder. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Real) | The overall length of the airfield surface. |
| width (Real) | The overall width of the airfield surface. |
| restricted (Boolean) | An indicator as to whether access to the feature is restricted |
| userFlag (String 254) | An 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. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |
| sequence (String 5) | Sequential number of the element. |
| surfaceCondition (Enumeration codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| surfaceType (Enumeration: codeSurfaceType) | A classification of airfield pavement surfaces for Airport Obstruction Charts [Source: NGS] |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.30. Taxiway Intersection

**Definition:** The junction of two or more taxiways (Source: ICAO Annex 14, Volume 1, Aerodromes, Chapter 1, page 5).

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | TaxiwayIntersection | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TAXI-INTS | Taxiway intersection | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 0 | Continuous | 7 | User Defined |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *TaxiwayElement* | | Core |
| | **FGDC** | *TaxiwayIntersection* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Capture a polygon establishing the intersection of two or more taxiways.*




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal and Vertical** | | |
| | N/A | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

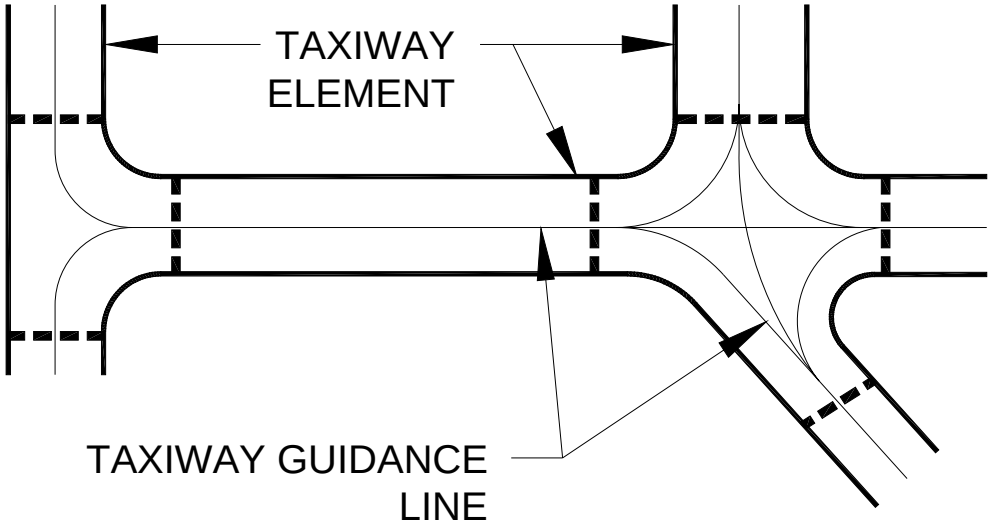
**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.4.31. Taxiway Element

| | | | | |
|---|---|---|---|---|
| **Definition:** 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. | | | | |
| **Feature Group** | Airfield | | | |
| **Feature Class Name** | TaxiwayElement | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TAXI-OTLN | Taxiway - outlines | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *TaxiwayElement* | | Core |
| | **FGDC** | *TaxiwayElement* | | |
| | **SDSFIE** | *airfield_surface_site* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect all taxiway elements as individual polygon objects. Collect taxiway at the outer edge of pavement or defined paint line (excluding shoulder). Each taxiway will typically be comprised of more than one element. When multiple elements make up a taxiway, identify the taxiway elements as beginning, intersection and end in the name attribute. Be sure to comply with the no overlappping polygon rule.* | | | | |




**Illustrates the collection of a taxiway element.**

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 255) | Description of the feature |
| taxiwayId (VarChar2(50)) | Taxiway element name. The name should be identical to the corresponding taxiway name. Multiple taxiway elements can have the same name. If two or more taxiways intersect the taxiway element intersection will be named after the predominant taxiway. If two taxiways on the same level intersect, the element can be named arbitrarily after one of the taxiways. |
| taxiwayType (Enumeration: CodeTaxiwayType) | The type of taxiway |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | A code indicating the composition of the related surface [Source: NFDC] |

| | |
|---|---|
| pavementClassificationNumber | A number that expresses the relative load-carrying capacity of a pavement in terms of a standard single wheel load [Source: AC 150/5335-5] |
| surfaceCondition (Enumeration codeSurfaceCondition) | A description of the serviceability of the pavement [Source: NFDC] |
| directionality (Enumeration: CodeDirectionality) | Code used to define the directionality of traffic on the element. |
| sequence | Sequential number of the taxiway element. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| surfaceType (Enumeration: codeSurfaceType) | Type of different materials used to construct the surface. |
| designGroup (Enumeration: codeDesignGroup) | Identifies the design group used in the design of the taxiway |
| length (Real) | Provides the length of the taxiwayElement polygon as measured along the centerline |
| width (Real) | Width of the taxiway |
| maximumSpeed (Real) | Identifies the maximum speed for the taxiwayElement |
| wingspan (Real) | Identifies the maximum aircraft wingspan which can traverse the taxiwayElement |

## 5.5. Group: AIRSPACE

### 5.5.1. Landmark Segment

**Definition:** Features providing geographic orientation near the airport vicinity. The features may or may not have obstruction value. Collect geographic features of landmark value aiding in geographic orientation as individual polyline objects. These features include, but are not limited to, the following:

(1). A selection of roads (i.e. major highways, primary roads, etc.) and railroads, especially in the airport vicinity, to assist the user in geographic orientation.
(2). Shoreline (i.e. coastlines, lakes, rivers, etc.) of landmark value that aid in geographic orientation.
(3). Utility lines (i.e. transmission lines), levees, fence lines, or other linear features having obstruction or landmark value.
(4). Buildings or other features of landmark value that aid in geographic orientation.
(5). Runways with specially prepared hard surfaces that are not located on the airport being surveyed, but fall within the survey limits.
(6). Closed runways if they are sufficiently prominent to be of value to a pilot in airport identification.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Airspace | | | |
| **Feature Class Name** | LandmarkSegment | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRS-LNDM | Landmark segment | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | | | | |
| **Equivalent Standards** | **AIXM** | *LandmarkSegment* | | Extension |
| | **FGDC** | *LandmarkSegment* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Be sure that the attribute field for "CodeLandmarkType" correctly identifies the linear object being drawn. Each landmark type feature has its own data capture rule, collect each feature as defined in individual feature data capture rule (RoadSegment, UtilityLine, Shoreline, etc.).* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| landmarkType (Enumeration: CodeLandmarkType) | Type of landmark feature |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.5.2. Obstacle

| **Definition:** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, located on an area intended for the surface movement of aircraft, penetrating an Obstruction Identification Surface (OIS), or selected as a representative object. Use this feature for modeling linear objects as obstacles. | | | | |
|---|---|---|---|---|
| **Feature Group** | Airspace | | | |
| **Feature Class Name** | Obstacle | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRS-OBST-LINE | Airspace obstruction - Line | | | |
| C-AIRS-OBST-PPNT | Airfield obstruction | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *Obstacle* | | Extension |
| | **FGDC** | *Obstacle* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Use the Obstacle feature type for point or line features penetrating an Obstruction Identification Surface (OIS) or selected as a representative object. Model line features as points representing the vertices of the line.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of the object | | Highest point | |

| **Accuracy Requirements** (in feet relative to the nearest PACS, SACS, HRP or TSM) | | | | |
|---|---|---|---|---|
| **Runways Supporting Vertically Guided Operations** | | | | |
| | **Horizontal** | **Vertical** | | |
| | | **Orthometric** | **Ellipsoid** | **AGL** |
| Vertically Guided Runway Primary Surface (VGRPS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Primary Connection Surface (VGPCS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Protection Surface (VGPS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Approach Transition Surface (VGATS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Approach Surface (VGAS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Horizontal Surface (VGHS) | ± 20 | ± 10 | ± 10 | ± 10 |
| Vertically Guided Conical Surface (VGCS) | ± 20 | ± 10 | ± 10 | ± 10 |
| **Runways Supporting Non-Vertically Guided Operations** | | | | |
| | **Horizontal** | **Vertical** | | |
| | | **Orthometric** | **Ellipsoid** | **AGL** |
| Non-vertically guided primary surface | ± 20 | ± 3 | ± 3 | ± 3 |
| Non-vertically guided approach surface | ± 20 | ± 10 | ± 10 | ± 10 |
| Non-vertically guided transitional surface | ± 20 | ± 10 | ± 10 | ± 10 |
| Non-vertically guided horizontal surface | ± 50 | ± 20 | ± 20 | ± 10 |

| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
|---|---|---|
| | Hundredth of arc second | Tenth of a foot |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| obstacleType (Enumeration: CodeObstacleType) | The type of object. |
| obstacleSource (Enumeration: CodeObstacleSource) | Identify how or where the object was identified. |
| aboveGroundLevel (Real) | The vertical distance from the ground to the highest point of the object. |
| distanceFromDisplacedThreshold (Real) | Distance measured along runway centerline or centerline extended from a Displaced Threshold to point abeam the object. A negative distance indicates that the object is on the touchdown side of the runway approach end. This data is not provided for objects penetrating the horizontal, conical and runway transitional surfaces. |

| | |
|---|---|
| distanceFromRunwayCenterline (Real) | Shortest distance from the runway centerline or centerline extended to the object. "L" (LEFT) or "R" (RIGHT) is relative to an observer facing forward in a landing aircraft. This data is not provided for objects penetrating the horizontal, conical and runway transitional surfaces. |
| distanceFromRunwayEnd (Real) | Distance measured along runway centerline or centerline extended from the physical end to point abeam the object. A negative distance indicates that the object is on the touchdown side of the runway approach end. This data is not provided for objects penetrating the horizontal, conical and transitional (HCT) surfaces. |
| groupCode (String 75) | A text code indicating that the object consists of a group of objects of the same type. For example, a group of trees, a group of buildings, a group of antennas, etc [Source: AIXM] |
| heightAboveAirport (Integer) | Height above airport the official airport elevation point [Source: NGS] |
| heightAboveRunway (Real) | Height above runway physical end for objects located underneath the approach surface. |
| heightAboveTouchdownZone (Real) | Height above touchdown zone elevation for objects located underneath the approach surface. |
| lightCode (Boolean) | A code indicating that the obstacle is lighted [Source: AIXM] |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking |
| penValSpecified (Integer) | The elevation difference between the height of the object and the specified surface. Used to identify the amount of penetration of the main OIS. |
| penValSupplemental (Integer) | The elevation difference between the height of the object and the supplemental surface. Used to identify the amount of penetration to a secondary OIS. |
| userFlag (String 254) | An 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. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| obstructionNumber (VARCHAR2(30)) | Provide the Aeronautical Study Number assigned by the FAA in the appropriate format (if known). The appropriate format is YYYY-XXX-NNNNN-TTT, EXAMPLE: 2008- ASW-1234-OE where YYYY is the year, XXX is the FAA responsible region (ASW, AAL, AGL, AEA, etc. ) or WTE for Wind Turbine cases in the eastern U.S. or WTW for wind turbine cases in the western U.S., NNNNN is the sequential number assigned to the case for the year, and TTT is either OE, NR or NRA as appropriate. The dashes in the format are important and if the information is not known leave this blank. |
| disposition (String 16) | The disposition of the airspace obstruction. |
| oisSurfaceCondition (Enumeration: is CodeOisSurfaceCondition) | The Obstruction Identification Surface that the obstacle represents. |

| | |
|---|---|
| frangible (Boolean) | A Boolean indicating whether the object is frangible. |
| faaCoordinationCode (Boolean) | A Boolean indicating whether the obstruction has received FAA coordination or review. |

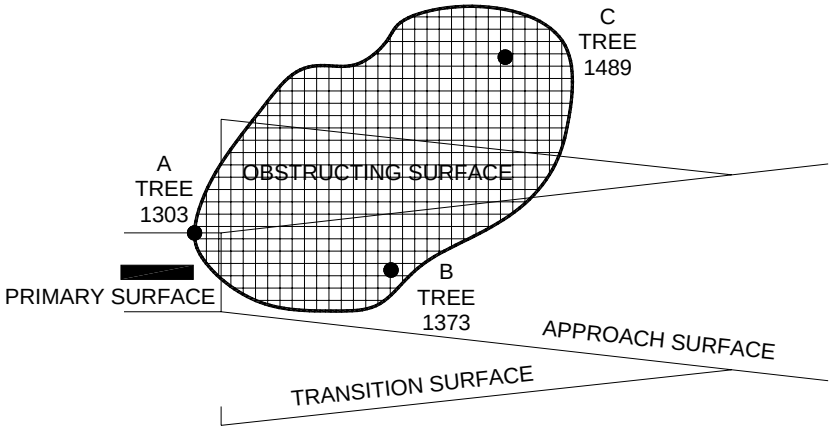
### 5.5.3. Obstruction Area

| | | | | |
|---|---|---|---|---|
| **Definition:** Polygon features penetrating the plane of the obstruction identification surface (OIS) or selected as representative objects. Determine the type of obstructing area by the predominant feature within the grouped area. Penetrating groups of trees, ground, buildings, urban areas, mobile cranes, and agricultural area are the most common types of obstruction areas found within the surfaces of an Airport Airspace Analysis survey. | | | | |
| **Feature Group** | Airspace | | | |
| **Feature Class Name** | ObstructionArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRS-OBST-POLY | Airspace obstruction | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 0 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ObstructionArea* | | Core |
| | **FGDC** | *ObstructionArea* | | |
| | **SDSFIE** | *airspace_obstruction_navaid_point* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |

| **Related Features** | |
|---|---|

**Data Capture Rules:** *Use the ObstructionArea feature type to model features penetrating an OIS or is selected as a representative object using a bounding polygon encompassing the greatest extents of the area and the height of the highest point within the feature.*

*Area Limit Object Requirements* – When a large area of objects such as buildings, terrain or vegetation penetrate a surface, identify the limits of the area using a bounding polygon within the lateral limits of the surface. Overlay the area lateral limits with a grid established parallel and perpendicular to the extended runway centerline of the surface (see figure below). Establish the grid beginning at the runway end using the appropriate spacing until reaching the obstructing area. Within 10,200 feet of the runway threshold, use 200-foot grid spacing; outside 10,200 feet from the threshold, use a grid spacing of 500 feet. Analyze, identify and report the highest manmade or natural object penetrating the surface within each grid sector. Additionally, report the highest manmade or natural object within the area limits (see Figure 2-18). If two objects with the exact same MSL elevation are within a grid sector, choose the sector object by first selecting the object closer to the centerline, then if required, by the object closer to the runway.




NOTES:

1. THIS GRAPHIC EXPLAINS OR CLARIFIES CERTAIN DATA REQUIREMENTS.
2. SEE TEXT WHEN OBJECT CONGESTION OCCURS.
3. DIMENSIONS ARE IN FEET. DO NOT SCALE THIS DRAWING.

**Reporting highest object(s) within ObstructionArea limits.**

| **Monumentation** | No monumentation required. | | | |
|---|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | | |
| | N/A | N/A | | |
| **Accuracy Requirements (in feet relative to the nearest PACS, SACS, HRP or TSM)** | | | | |
| **Runways Supporting Vertically Guided Operations** | | | | |
| | **Horizontal** | **Vertical** | | |
| | | **Orthometric** | **Ellipsoid** | **AGL** |
| Vertically Guided Runway Primary Surface (VGRPS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Primary Connection Surface (VGPCS) | ± 20 | ± 3 | ± 3 | ± 10 |

| | | | | |
|---|---|---|---|---|
| Vertically Guided Protection Surface (VGPS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Approach Transition Surface (VGATS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Approach Surface (VGAS) | ± 20 | ± 3 | ± 3 | ± 10 |
| Vertically Guided Horizontal Surface (VGHS) | ± 20 | ± 10 | ± 10 | ± 10 |
| Vertically Guided Conical Surface (VGCS) | ± 20 | ± 10 | ± 10 | ± 10 |

| **Runways Supporting Non-Vertically Guided Operations** | | | | |
|---|---|---|---|---|
| | **Horizontal** | **Vertical** | | |
| | | **Orthometric** | **Ellipsoid** | **AGL** |
| Non-vertically guided primary surface | ± 20 | ± 3 | ± 3 | ± 3 |
| Non-vertically guided approach surface | ± 20 | ± 10 | ± 10 | ± 10 |
| Non-vertically guided transitional surface | ± 20 | ± 10 | ± 10 | ± 10 |
| Non-vertically guided horizontal surface | ± 50 | ± 20 | ± 20 | ± 10 |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredths of arc second | | Tenth of a foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2(50)) | Name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| obstacleType (Enumeration: CodeObstacleType) | The type of object. |
| obstacleSource (Enumeration: CodeObstacleSource) | Identify how or where the object was identified. |
| aboveGroundLevel (Real) | The vertical distance from the ground to the highest point of the object. |
| distanceFromDisplacedThreshold (Real) | Distance measured along runway centerline or centerline extended from a Displaced Threshold to point abeam the object. A negative distance indicates that the object is on the touchdown side of the runway approach end. This data is not provided for objects penetrating the horizontal, conical and runway transitional surfaces. |
| distanceFromRunwayCenterline (Real) | Shortest distance from the runway centerline or centerline extended to the object. "L" (LEFT) or "R" (RIGHT) is relative to an observer facing forward in a landing aircraft. This data is not provided for objects penetrating the horizontal, conical and runway transitional surfaces. |

| | |
|---|---|
| distanceFromRunwayEnd (Real) | Distance measured along runway centerline or centerline extended from the physical end to point abeam the object. A negative distance indicates that the object is on the touchdown side of the runway approach end. This data is not provided for objects penetrating the horizontal, conical and transitional (HCT) surfaces. |
| groupCode (String 75) | A text code indicating that the object consists of a group of objects of the same type. For example, a group of trees, a group of buildings, a group of antennas, etc [Source: AIXM] |
| heightAboveAirport (Integer) | Height above airport the official airport elevation point [Source: NGS] |
| heightAboveRunway (Real) | Height above runway physical end for objects located underneath the approach surface. |
| heightAboveTouchdownZone (Real) | Height above touchdown zone elevation for objects located underneath the approach surface [Source: NGS] |
| lightCode (Boolean) | A code indicating that the obstacle is lighted [Source: AIXM] |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking |
| penValSpecified (Integer) | The elevation difference between the height of the object and the specified surface. Used to identify the amount of penetration of the main OIS. |
| penValSupplemental (Integer) | The elevation difference between the height of the object and the supplemental surface. Used when to identify the amount of penetration to a secondary OIS. |
| obstructionNumber (VARCHAR2(30)) | Provide the Aeronautical Study Number assigned by the FAA in the appropriate format (if known). The appropriate format is YYYY-XXX-NNNNN-TTT, EXAMPLE: 2008- ASW-1234-OE where YYYY is the year, XXX is the FAA responsible region (ASW, AAL, AGL, AEA, etc. ) or WTE for Wind Turbine cases in the eastern U.S. or WTW for wind turbine cases in the western U.S., NNNNN is the sequential number assigned to the case for the year, and TTT is either OE, NR or NRA as appropriate. The dashes in the format are important and if the information is not known leave this blank. |
| obstructionAreaType (Enumeration: CodeObstructionAreaType) | Type of obstructing area. |
| disposition (VARCHAR2(255)) | The disposition of the airspace obstruction. |
| oisSurfaceCondition (Enumeration: CodeOisSurfaceCondition) | The Obstruction Identification Surface that Obstructing Area represents |
| length (Real) | The overall length of the obstruction. |
| width (Real) | The overall width of the obstruction. |
| frangible (Boolean) | A Boolean indicating whether the object is frangible. |
| faaCoordinationCode (Boolean) | A Boolean indicating whether the obstruction has received FAA coordination or review. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.5.4. Obstruction Identification Surface

| **Definition:** A derived imaginary surface defined by FAA. | | | | |
|---|---|---|---|---|
| **Feature Group** | Airspace | | | |
| **Feature Class Name** | ObstructionIdSurface | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRS-OTHR | Other airspace surfaces | | | |
| C-AIRS-PART-PRIM | 14 CFR Part 77 - Primary Surface | | | |
| C-AIRS-PART-HORZ | 14 CFR Part 77 - Horizontal Surface | | | |
| C-AIRS-PART-CONL | 14 CFR Part 77 - Conical Surface | | | |
| C-AIRS-PART-TRNS | 14 CFR Part 77 - Transitional Surfaces | | | |
| C-AIRS-PART-APRC | 14 CFR Part 77 - Approach Surfaces | | | |
| C-AIRS-AAAS-PRIM | Airport Airspace Analysis Survey - Primary Surfaces | | | |
| C-AIRS-AAAS-HORZ | Airport Airspace Analysis Survey - Horizontal Surface | | | |
| C-AIRS-AAAS-CONL | Airport Airspace Analysis Survey - Conical Surface | | | |
| C-AIRS-AAAS-TRNS | Airport Airspace Analysis Survey - Transitional Surfaces | | | |
| C-AIRS-AAAS-APRC | Airport Airspace Analysis Survey - Approach Surfaces | | | |
| C-AIRS-AAAS-VERT | Airport Airspace Analysis Survey - Vertical Guidance Protection Surface | | | |
| C-AIRS-TERP | TERPS Surfaces | | | |
| C-AIRS-TERP-DEPT | Departure Analysis | | | |
| C-AIRS-OEIA | One Engine Inoperative Analysis | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 (all) | Continuous (all) | 1 MM (all) | User Defined |
| **MicroStation Standards** | 0 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ObstructionAssessmentArea* | | Core |
| | **FGDC** | *ObstructionIdentificationSurface* | | |
| | **SDSFIE** | *airfield_imaginary_surface_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Identify the obstruction identification surface (OIS) required by the utilization type for the runway. Depict the horizontal limits of the appropriate obstruction imaginary surface.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | N/A | | N/A | N/A |

| Resolution | Geographic Coordinates | Distances and Elevations |
|---|---|---|
| | N/A | N/A |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | A commonly used name for the zone. |
| description (VARCHAR2 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| runwayDesignator (String 7) | Specify runway designator for the Vertically Guided Runway Primary Surface (VGRPS), for the Vertically Guided Primary Connection Surface (VGPCS), and for the Vertically Guided Approach Transitional Surface (VGATS). |
| runwayEndDesignator (String 3) | Specify runwayEnd designator for the Vertically Guided Approach Surface (VGAS) and for the Vertically Guided Protection Surface (VGPS). |
| oisSurfaceType (Enumeration: CodeOisSurfaceType) | 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. |
| oisZoneType (Enumeration: CodeOisZoneType) | Specifies zones within Obstruction Identification Surfaces (OIS) |
| oisSurfaceCondition (Enumeration: CodeOisSurfaceCondition) | The Obstruction Identification Surface that Obstructing Area represents |
| safetyRegulation (String 20) | An identifier for the safety regulations in effect within the zone. |
| zoneUse (String 50) | A description of the use of the zone. |
| approachGuidance (Enumeration: CodeApproachGuidance) | Defines the type of approach guidances the OIS is meant to protect. |
| slope (Real) | The low to high gradient within the airspace expressed as a ratio x:1, where X is the slope value. For example 40:1 for departures. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.5.5. Runway Protect Area

| **Definition:** An area beyond the takeoff runway under control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations, and the size and upward slope of the clearway will differ depending on when the aircraft was certificated. | |
|---|---|
| **Feature Group** | Airspace |
| **Feature Class Name** | RunwayProtectArea |
| **Feature Type** | Polygon |

| CADD Standard Requirements | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| C-RUNW-CLRW | Runway Clearway | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | |
| **MicroStation Standards** | 7 | | 3 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *RunwayProtectAreaExtension* | | Extension |
| | **FGDC** | *RunwayProtectArea* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *N/A* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | N/A | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Tenth of foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | The name of the feature. |
| description (VARCHAR2(255)) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Integer) | The length of clearway as reported by the FAA Airport/Facility Directory and the Aeronautical Information Publication (AIP) for international airports |
| userFlag (String 254) | An 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. |
| type (Enumeration: CodeRunwayProtectionAreaType) | Code indicating the type of runway protection area being classified. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.6. Group: CADASTRAL

### 5.6.1. Airport Boundary

| **Definition:** A polygon, or a set of polygons, encompassing all property owned or controlled by the airport for aviation purposes. [Source: Order 5190.6A, Section 5] | | | | |
|---|---|---|---|---|
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | AirportBoundary | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-PROP-PROP- | Airport property | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 | |
| **MicroStation Standards** | 4 | | 3 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirportHeliport* | | Core |
| | **FGDC** | *AirportBoundary* | | |
| | **SDSFIE** | *Airfield_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

| **Data Capture Rules:** *Airport property information is usually obtainable from the county or local government.* | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | The name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| faaSiteNumber (String 8) | This is a 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. If you do not know or have access to the appropriate site number contact your airports district/region airports office or state aviation authorities for assistance. [Source: FAA AC 150/5200-35] |
| faaLocationId (String 4) | The location identifier assigned to the feature by FAA |
| iataCode (String 4) | The location identifier assigned to the feature by International Air Transport Association (IATA) |
| icaoCode (String 4) | The location identifier assigned to the airport by the ICAO |

| | |
|---|---|
| airportFacilityType (Enumeration CodeAirportFacilityType) | The type of airfield |
| operationsType (Enumeration: CodeOperationsType) | The type of operations permitted on the airfield |
| owner (Enumeration: CodeOwner) | The type of owner of the airfield |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.2. Airport Parcel

**Definition:** A tract of land within the airport boundary acquired from surplus property, Federal funds, local funds, etc. Include easement interests in areas outside the fee property line as an airport parcel. [Source FAA Order 5190.6, Chapter 5]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | AirportParcel | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-AIRF-LINE- | Property lines (Existing recorded plats) | | | |
| V-PROP-QTRS- | Quarter lines | | | |
| V-PROP-SECT- | Section lines | | | |
| V-PROP-SXTS- | Sixteenth lines (40 lines) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 3 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirportParcel* | | Extension |
| | **FGDC** | *AirportParcel* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect and reduce in accordance with state/local requirements.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As required by state/local requirements. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest tenth of a foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (String 255) | Description of the feature |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| authority (String 75) | The owner of the airport parcel |
| acquisitionType (Enumeration: codeAcquisitionType) | The type of acquisition used to acquire the parcel |
| costToAcquire (Real) | The amount paid to the owner in U.S. dollars for the parcel |
| dateAcquired (Date) | The date the parcel was acquired. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| grantProjectNumber (String 30) | The grant number if Federal funds were used to acquire the parcel |
| howAcquired (Enumeration: codeHowAcquired) | The manner in which the parcel was acquired |
| marketValue (Real) | The assessed market value of the parcel in U.S. dollars when it was acquired |
| yearAssessed (Number 4) | The year in which the market value assessment was made |
| yearBuilt (Number 4) | The year in which the most recent structure(s) were built on the parcel |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| acquisitionPurpose (String 50) | Acquisition purpose |
| area (Real) | The size of the area, zone, or polygon in square units. |
| assessedValue (Real) | The most recent assessed value of the airport parcel. |
| deedReference (String 30) | Reference to where the deed to the airport parcel is recorded in such information as Plat Book and Page. |
| legalDescription (String 240) | The complete legal description of the property as it appears in the deed. |
| parcelNumber (String 12) | Any locally used number to identify the parcel. |
| passengerChargeNumber (String 30) | Passenger Facility Charge Number |
| previousOwner (String 75) | Previous owner of the airport parcel |
| useOfParcel (String 16) | The current primary use of the airport parcel. |

### 5.6.3. County

| **Definition:** Boundary line of the land and water under the right, power, or authority of the county government. | |
|---|---|
| **Feature Group** | Cadastral |
| **Feature Class Name** | County |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| V-PROP-CNTY- | County Boundary |

| | Color | Line type | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 2 | DASHED_SPACED | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GovernmentalUnit* | | Extension |
| | **FGDC** | *GovernmentalUnit* | | Extension |
| | **SDSFIE** | *political_jurisdiction_county_line* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *County boundary information is usually obtainable from the county engineer, surveyor or auditor's office.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | The description of the area. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| politicalName (String 30) | The common name associated with the property area. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.4. Easements And Rights of Ways

| **Definition:** A parcel of land for which formal or informal deed easement rights exist [Source: SDSFIE (modified)] | |
|---|---|
| **Feature Group** | Cadastral |
| **Feature Class Name** | EasementsAndRightsofWay |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-PROP-ESMT- | Easements |
| C-PROP-RWAY- | Right of ways |
| V-PROP-ESMT- | Government easements/property lines |
| V-PROP-RWAY- | Right of ways |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Layer/Level** | **Description** | | | |
| V-PROP-RWAY- | Right of ways | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *EasementsAndRightsofWay* | | Extension |
| | **FGDC** | *EasementsAndRightsofWay* | | Extension |
| | **SDSFIE** | *easement_right_of_way_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Easement and right of way information is usually obtainable from county engineer, surveyor, audit or recorder office.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredths of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A brief description of the feature. |
| status (Enumeration: codeStatus) | The status of the parcel. (Active, inactive, terminated) |
| purpose (String 30) | Project purpose for which the easement was acquired. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.5. FAA Region Area

| **Definition:** This feature depicts the FAA regions. | |
|---|---|
| **Feature Group** | Cadastral |
| **Feature Class Name** | FAARegionArea |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-AIRF-FAAR- | FAA Region |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 1 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 3 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *FaaRegionArea* | | Extension |
| | **FGDC** | *FaaRegionArea* | | Extension |
| | **SDSFIE** | *faa_region_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules**: *Collect this information from official FAA sources.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the FAA region. |
| description (VARCHAR2 (255)) | Description of the FAA region. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.6. Land Use

| **Definition:** A description of the human use of land and water. | | | | |
|---|---|---|---|---|
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | LandUse | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-LUSE- | Land Use Area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *LandUse* | | Extension |
| | **FGDC** | *LandUse* | | Extension |
| | **SDSFIE** | *land_use_area* | | |

| | | | | |
|---|---|---|---|---|
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the land use information from state/county/local zoning or other appropriate office.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredths of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the land use area. |
| description (VARCHAR2 (255)) | Description of the land use area. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| useType (Enumeration: CodeLandUseType) | The way in which the land is being used. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.7. Lease Zone

| **Definition:** A parcel of land leased by an individual, agency, or organization for their use. | | | | |
|---|---|---|---|---|
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | LeaseZone | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-LEAS- | Lease line (surveyed) | | | |
| A-PROP-LEAS- | Lease line (interior) | | | |
| C-PROP-LEAS- | Lease line (exterior / ground lease) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 3 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *LeaseZone* | | Extension |
| | **FGDC** | *LeaseZone* | | Extension |
| | **SDSFIE** | *lease_zone_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

| **Data Capture Rules:** *Leasing information is usually obtainable from the airport.* | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | As provided. | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredths of arc second | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A brief description of the feature. |
| tenantName (String 75) | The current name of the tenant occupying the leased parcel. |
| permitUse (String 20) | Permitted use of the leased parcel. |
| leasedArea (Real) | Area accounted for in the lease for a parcel. |
| actualArea (Real) | Actual measured area of the leased parcel. |
| expectedLeaseExpirationDate (Date) | The date the lease is expected to expire. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| legalDescription (String 240) | The complete legal description of the property as it appears in the deed. |
| status (Enumeration: codeStatus) | The status of the parcel. (Active, inactive, terminated) |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.8. Municipality

| **Definition:** Boundary line of the land and water under the right, power, or authority of the municipal government. | | | | |
|---|---|---|---|---|
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | Municipality | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-MUNI- | Municipal Boundary | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 3 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GovernmentalUnit* | | Extension |
| | **FGDC** | *GovernmentalUnit* | | Extension |
| | **SDSFIE** | *political_jurisdiction_municipal_line* | | |
| **Documentation and Submission Requirements** | None | | | |

| | | | | |
|---|---|---|---|---|
| **Related Features** | | | | |
| **Data Capture Rules**: *Municipality boundary limits are usually obtainable from county or local government offices.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | The common name associated with the property area. | | | |
| description (VARCHAR2 (255)) | The description of the area. | | | |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. | | | |
| userFlag (String 254) | An 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. | | | |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. | | | |

### 5.6.9. Parcel

| | | | | |
|---|---|---|---|---|
| **Definition:** A single cadastral unit, which is the spatial extent of the past, present, and future rights and interests in real property and the geographic framework to support the description of the spatial extent. | | | | |
| **Feature Group** | Cadastral | | | |
| **Feature Class Name** | Parcel | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-LINE- | Property lines (Existing recorded plats) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GeographicArea* | | Extension |
| | **FGDC** | *GeographicArea* | | Extension |
| | **SDSFIE** | *parcel_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Parcel boundary information is usually obtainable from the county or local government.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | As provided. | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredths of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| area (Real) | The size of the area, zone, or polygon in square units. |
| useOfParcel (String 16) | The current primary use of the parcel. |
| name (VARCHAR2 (50)) | The common name associated with the property area. |
| description (VARCHAR2 (255)) | The description of the area. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| parcelNumber (String 12) | Any locally used number to identify the parcel. |
| legalDescription (String 240) | The complete legal description of the property as it appears in the deed. |
| dateAcquired (Date) | The date the parcel was acquired by the current owner. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| assessedValue (Real) | The most recent assessed value of the parcel. |
| deedReference (String 30) | Reference to where the deed to the parcel is recorded in such information as Plat Book and Page. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| authority (String 75) | The owner of the parcel |
| previousOwner (String 75) | Previous owner of the parcel |
| acquisitionType (Enumeration: CodeAcquisitionType) | The type of acquisition used to acquire the parcel |
| acquisitionPurpose (String 50) | Acquisition purpose |
| costToAcquire (Real) | The amount paid to the owner in U.S. dollars for the parcel |
| grantProjectNumber (String 30) | The grant number if Federal funds were used to acquire the parcel |
| howAcquired (enumeration: codeHowAcquired) | The manner in which the parcel was acquired |
| marketValue (Real) | The assessed market value of the parcel in U.S. dollars when it was acquired |
| yearAssessed (Number 4) | The year in which the market value assessment was made |
| yearBuilt (Number 4) | The year in which the most recent structure(s) were built on the parcel |

### 5.6.10. State

| **Definition:** Boundary line of the land and water under the right, power, or authority of the state government. | |
|---|---|
| **Feature Group** | Cadastral |
| **Feature Class Name** | State |

| **Feature Type** | Polygon | | | |
|---|---|---|---|---|
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-PROP-STAT- | State Boundary | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GovernmentalUnit* | | Extension |
| | **FGDC** | *GovernmentalUnit* | | Extension |
| | **SDSFIE** | *political_jurisdiction_state_line* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *The state boundary is usually obtainable from the state government.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | **N/A** | | **N/A** | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | As provided. | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredths of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | The common name associated with the property area. |
| description (VARCHAR2 (255)) | The description of the area. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.6.11. Zoning

| **Definition:** A parcel of land zoned specifically for real estate and land management purposes; more specifically for commercial, residential, or industrial use. | |
|---|---|
| **Feature Group** | Cadastral |
| **Feature Class Name** | Zoning |
| **Feature Type** | Polygon |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| V-PROP-ZONG- | Zoning Areas |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 8 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 9 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Zoning* | | Extension |
| | **FGDC** | *Zoning* | | Extension |
| | **SDSFIE** | *zoning_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Zoning limits and information is usually obtainable from the local zoning office.*

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | As provided. | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of a second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A brief description of the feature. |
| status (Enumeration: codeStatus) | The status of the parcel. (Active, inactive, terminated) |
| landOwnerRestriction (String 16) | Codes determining the land owner restriction for the parcel. |
| zoningClassification (Enumeration: CodeZoningClass) | The zoning classification of the parcel. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.7. Group: ENVIRONMENTAL

### 5.7.1. Environmental Contamination Area

| | | | | |
|---|---|---|---|---|
| **Definition:** A facility or other locational entity, (as designated by the Environmental Protection Agency) that is regulated or monitored because of environmental concerns. | | | | |
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | EnvironmentalContaminationArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| H-POLL-CONC- | Polluted area of concern | | | |
| H-POLL-POTN- | Potential spill, emission, or release source | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *EnvironmentalContaminationArea* | Extension | |
| | **FGDC** | *EnvironmentalContaminationArea* | Extension | |
| | **SDSFIE** | *environmental_regulated_facility_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | The name of a specific facility. |
| description (VARCHAR2 (255)) | A description of the source of the pollution. |
| environmentalHazardCategory (String 16) | Indicates the broad category or type of the most prevalent or serious environmental hazard present at the site. |
| pollutantReleaseType (String 16) | A descriptor for the type of pollutant release experienced. |
| severity (String 16) | A descriptor for the severity of the pollution. |
| remediationUrgency (String 16) | A code indicating the urgency for accomplishing a site remediation project. |
| toxicStatusOfPollutant (String 16) | A descriptor for the toxic status of the pollution. |
| status (enumeration: codeStatus) | The code indicating whether the facility status is Active or Inactive. |
| dateFound (Date) | The date the pollution was discovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915) |
| cause (String 16) | A code indicating the cause of the pollution. |

| | |
|---|---|
| pollutantSource (String 16) | The actual or suspected source of the pollutant. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.2. Fauna Hazard Area

| | | | | |
|---|---|---|---|---|
| **Definition:** An area where there are hazards due to wildlife activities. This includes bird aircraft strike hazard (BASH) areas, and deer strike areas. | | | | |
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | FaunaHazardArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-TOPO-SPEC- | Species Site | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirspaceExtension* | | Extension |
| | **FGDC** | *FaunaHazardArea* | | Extension |
| | **SDSFIE** | *fauna_hazard_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 240 characters. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| hazardType (Enumeration: CodeHazardType) | A descriptor of the type of the hazard. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.3. Flood Zone

| **Definition:** Areas subject to 100-year, 500-year and minimal flooding. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | Floodzone | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-FLZN- | Flood Zone | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *FloodZone* | | Extension |
| | **FGDC** | *FloodZone* | | Extension |
| | **SDSFIE** | *flood_zone_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| zoneType (Enumeration: CodeZoneType) | The zoning classification of the area |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.4. Flora Species Site

| | | | | |
|---|---|---|---|---|
| **Definition:** The specific location where an individual flora species or an aggregate of flora species has been identified | | | | |
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | FloraSpeciesSite | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| L-PLNT-CTNR- | Containers or planters | | | |
| L-PLNT-PLTS- | Planting plants (e.g., ornamental annuals and perennials) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| L-PLNT-TREE- | Trees (e.g., evergreen, deciduous, etc.) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *FloraSpeciesSite* | | Extension |
| | **FGDC** | *FloraSpeciesSite* | | Extension |
| | **SDSFIE** | *flora_species_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a point indicating the individual location or the center of a group.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Any brief description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| plantType (String 16) | A descriptor of the type of flora. |
| plantHeight (Real) | The average height of the flora species. |
| endangeredSpeciesActSite (String 1) | Defines if the habitat has been designated as a critical habitat under (C) the Endangered species Act or has not been so designated (N). |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.5. Forest Stand Area

| **Definition:** A forest flora community with similar characteristics. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | ForestStandArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| L-DETL-GRAS- | Grass, sod | | | |
| L-PLNT-BEDS- | Planting beds | | | |
| L-PLNT-BUSH- | Bushes and shrubs (e.g., evergreen, deciduous) | | | |
| L-PLNT-BUSH-LINE | Bush and shrub line | | | |
| L-PLNT-GRND- | Groundcover and vines | | | |
| L-PLNT-MLCH- | Mulches - organic and inorganic | | | |
| L-PLNT-SPRG- | Sprigs | | | |
| L-PLNT-TREE-LINE | Tree line | | | |
| L-PLNT-TURF- | Lawn areas (turfing limits) | | | |
| V-SITE-VEGE- | Existing treelines and vegetation | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *ForestStandArea* | | Extension |
| | **FGDC** | *ForestStandArea* | | Extension |
| | **SDSFIE** | *flora_species_management_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *In capturing the limits of the tree outlines create the graphical line in a right hand direction so patterning of the element will form the scallops on the correct side of the forest outline.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | Name of the feature. | | | |

| | |
|---|---|
| description (VARCHAR2 (255)) | A description of the flora species. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| habitatCategory (String 16) | Discriminator - The designation or type of the special wildlife habitat. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.6. Hazardous Material Storage Site

| **Definition:** A defined or bounded geographical area designated and used for the storage of contained hazardous materials. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | HazardousMaterialStorageSite | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| H-STOR-HAZM- | Hazardous materials | | | |
| H-STOR-HAZW- | Hazardous waste | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *HazardousMaterialStorageSite* | Extension | |
| | **FGDC** | *HazardousMaterialStorageSite* | Extension | |
| | **SDSFIE** | *Contained_hazwaste_storage_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect closed polygon to its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 240 characters. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |

| | |
|---|---|
| storeHazardousMaterialCategory (Enumeration: CodeHazardCategory) | The general type or category of contained hazardous material stored. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.7. Noise Contour

**Definition:** An 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. [Source: 14 CFR 150]

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | NoiseContour | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-AUZN- | Noise contour zone | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 2 | Continuous | 7 | User Defined |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *NoiseContour* | | Extension |
| | **FGDC** | *NoiseContour* | | Extension |
| | **SDSFIE** | *Noise_contour_line* | | |
| **Documentation and Submission Requirements** | Noise contour map | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Acquire from the Integrated Noise Model (INM).* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | N/A | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | N/A | | N/A | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description for the noise zone. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| contourValue (Real) | The decibel level of the contour line |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.8. Noise Incident

| **Definition:** A formal complaint by an individual or group regarding excessive noise resulting from airport operations. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | NoiseIncident | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-AUCO- | Noise Complaint | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *NoiseIncident* | | Extension |
| | **FGDC** | *NoiseIncident* | | Extension |
| | **SDSFIE** | *noise_incident_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Place collection point at address of complaint.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 50 ft | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A general description of the complete incident, including any reference material. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| reporter (String 50) | The name of the individual or organization reporting the incident. |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.9. Noise Monitoring Point

| **Definition:** The location of noise sensing equipment or where a noise sample is taken. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | NoiseMonitoringPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-AUST- | Noise Monitoring Station | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Point | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *NoiseMonitoringPoint* | | Extension |
| | **FGDC** | *NoiseMonitoringPoint* | | Extension |
| | **SDSFIE** | *noise_monitoring_point* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect point at the center of monitoring station.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.10. Sample Collection Point

| **Definition:** The physical location at which one or more environmental hazards field samples are collected. | |
|---|---|
| **Feature Group** | Environmental |
| **Feature Class Name** | SampleCollectionPoint |

| **Feature Type** | Point | | | |
|---|---|---|---|---|
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| H-SAMP-AIRS- | Air samples | | | |
| C-TOPO-BORE- | Boring locations | | | |
| H-SAMP-BIOL- | Biological samples | | | |
| H-SAMP-GWTR- | Ground water samples | | | |
| H-SAMP-SEDI- | Sediment samples | | | |
| H-SAMP-SOIL- | Soil samples | | | |
| H-SAMP-SOLI- | Solid material samples | | | |
| H-SAMP-SWTR- | Surface water samples | | | |
| H-SAMP-WAST- | Waste samples | | | |
| V-TOPO-BORE- | Boring locations | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *SampleCollectionPoint* | | Extension |
| | **FGDC** | *SampleCollectionPoint* | | Extension |
| | **SDSFIE** | *field_sample_collection_location_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect point at center of sample location.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | | ± 1 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Descriptor providing any additional information to describe the sampling location in text format (e.g., monitoring well located 10 feet northeast of building 624 within spill area). IRPIMS. [Source: SDSFIE Feature Table] |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| collectionPointLocation (Enumeration: CodeSamplePointLocation) | Code describing the type of location which is undergoing sampling (e.g., bh= borehole, wl=well). |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.7.11. Shoreline**

| **Definition:** The boundary where land meets the edge of a large body of fresh or salt water. | | | | |
|---|---|---|---|---|
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | Shoreline | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-DRED-OHWM- | Ordinary high water marks | | | |
| C-TOPO-SHOR- | Shorelines, land features, and references | | | |
| H-MNST-GWTR- | Ground water | | | |
| H-MNST-SWTR- | Surface water | | | |
| S-GRDL-WATR- | Water surface | | | |
| V-SITE-EWAT- | Water features | | | |
| V-SITE-WATR- | Water features | | | |
| V-TOPO-SHOR- | Shorelines, land features, and references | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 3 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GeoBorderExtension* | | Extension |
| | **FGDC** | *Shoreline* | | Extension |
| | **SDSFIE** | *shoreline* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon at its greatest horizontal extents coincident with land/water interface. Close the polygon at arbitrary points ensuring sufficient coverage of the water body.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | A commonly used name for the shoreline. |
| description (VARCHAR2 (255)) | A local description for the shoreline. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| shorelineType (Enumeration: CodeShorelineType) | Discriminator - A value indicating the type or kind of shoreline. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.7.12. Wetland

| | | | | |
|---|---|---|---|---|
| **Definition:** Transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. The soils are predominantly saturated with water and the plants and animals that live there are specialized for this ecosystem. | | | | |
| **Feature Group** | Environmental | | | |
| **Feature Class Name** | Wetland | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| **V-TOPO-WETL** | Wetland | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirspaceExtension* | | Extension |
| | **FGDC** | *Wetland* | | Extension |
| | **SDSFIE** | *Wetland_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon to establish the boundary between wetlands and uplands (or non-wetlands). There are two delineation procedures developed at the federal level and several states have their own wetland delineation procedures. Contact federal/state/local environmental agency for assistance.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Any commonly used name for the wetland. |
| description (VARCHAR2 (255)) | A description of the wetland. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| featureType (String 16) | A descriptor of how the wetland is depicted graphically. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.8. Group: GEOSPATIAL

### 5.8.1. Airport Control Point – Runway Intersection Point

| | | | | |
|---|---|---|---|---|
| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *SurveyControlPointExtension* | Extension | |
| | **FGDC** | *AirportControlPoint* | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the point where the centerlines of two, or more, runways intersect.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2(50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Not applicable to this point type |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |

| | |
|---|---|
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.2. Airport Control Point – Airport Elevation

**Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE).

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *AirportControlPoint* | | |
| | **FGDC** | *SurveyControlPointExtension (Extension)* | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Calculate the Airport Elevation using the runway profile data. The Airport Elevation is the highest point along all usable runways.*

| **Monumentation** | Filled in by survey group only | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Specify Runway Designator |
| runwayEndDesignator (String 3) | Not applicable to this point type |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.3. Airport Control Point – Centerline Perpendicular Points

| | | | | |
|---|---|---|---|---|
| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | 3D Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collected point along runway centerline perpendicular to the location of required NAVAIDs. ILS, MLS, PAR, TLS, and VGSI NAVAIDs systems require this measurement refer to the appropriate feature class description for the NAVAID.* | | | | |
| **Monumentation** | Filled in by survey group only | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | | ± 0.25ft | ± 0.25 ft |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest tenth of a foot | |

**Feature Attributes**

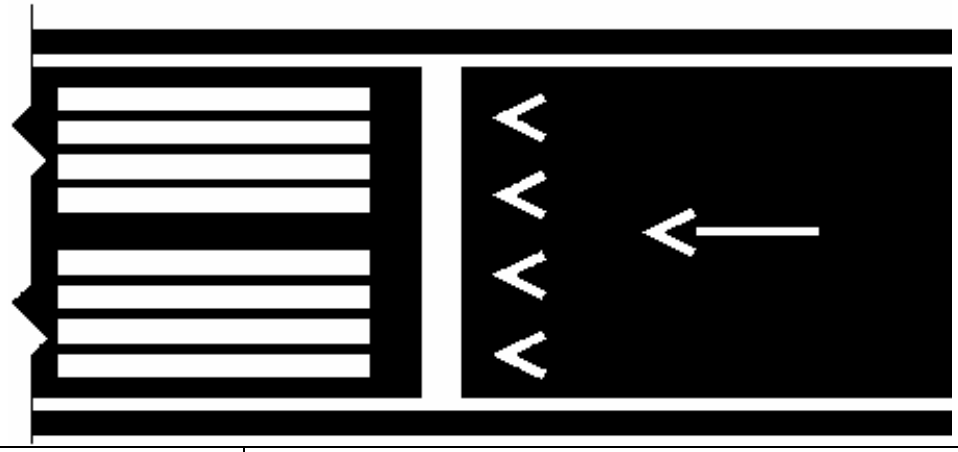
| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Not applicable to this point type |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |

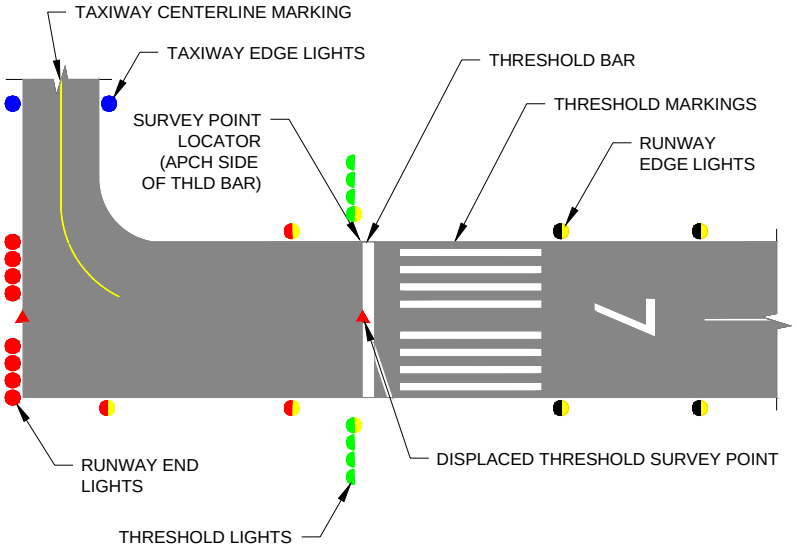
| | |
|---|---|
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.4. Airport Control Point – Displaced Threshold Point

| | | | | |
|---|---|---|---|---|
| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Displaced Threshold, Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RUNW-DISP- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | In addition to the requirements of paragraphs 1.5.2 and 1.5.3, document the selected location using four digital photographs. | | | |

| | | |
|---|---|---|
| |  **Photograph Type #1 (Eye Level).** Photo taken from above the mark, showing an area around the mark about 1 meter in diameter. |  **Photograph Type #2 (Approach).** Photo showing tripod over the mark in foreground and approach in the background. |
| |  **Photograph Type #3 (Across Runway).** Photo taken from the side of the runway looking across the end of the runway, with a tripod or arrow indicating the end point; include any features used to identify the runway end. |  **Photograph Type #4 (Close-in).** Close-up photo depicting nail, washer and markings. |

| **Related Features** | |
|---|---|
| **Data Capture Rule:** *Establish the displaced threshold on the runway centerline a specified distance from the runway end. The area between the runway end and the displaced threshold should be marked with white arrows.*  | |
| **Monumentation** | When the ends of the runway surface have been determined, mark the positions using a nail and washer with the setting company's name and year inscribed, chisel square, or paint if possible with a distinctive inscription to ensure future identification. |
| **Survey Point Location** | **Paved Runway**<br>Survey Point Locator is the approach side of threshold bar or trim line connecting outboard threshold lights. Supporting features include:<br>• Threshold lights near threshold<br>• Runway end lights sited at another location on approach side of threshold lights<br>• White or amber runway edge lights, not blue taxiway lights, between threshold and end of runway<br>• Runway number near threshold<br>• White displaced threshold markings on approach side of threshold bar<br>• Runway side stripe on Precision Instrument Runways<br>Comments: Use **caution**, especially on smaller, poorly marked airports, not to confuse a displaced threshold with the end of a runway with an aligned taxiway. |




NOTES:

1. THIS GRAPHIC IS NOT TO SCALE. FEATURES ARE SYMBOLIZED AND INTENDED ILLUSTRATION PURPOSES ONLY.
2. RUNWAY/STOPWAY SURVEYS SHOULD BE DISCUSSED WITH APPROPRIATE AIRPORT AUTHORITIES.
3. SURVEY POINT LOCATOR:
   - APPROACH SIDE OF THRESHOLD BAR
4. SUPPORTING FEATURES
   - RUNWAY END LIGHTS NEAR END OF PAVEMENT
   - THRESHOLD LIGHTS NEAR THRESHOLD BAR
   - RUNWAY NUMBER AND THRESHOLD MARKINGS NEAR THRESHOLD BAR
   - RUNWAY EDGE LIGHTS BETWEEN THRESHOLD AND END OF PAVEMENT
5. COMMENTS:
   - NONSTANDARD MARKINGS FOR DISPLACED THRESHOLD
   - THRESHOLD LIGHTS MAY NOT BE PRECISELY ALIGNED WITH APPROACH SIDE OF THRESHOLD BAR
   - DO NOT CONFUSE THIS SITUTION WITH A RUNWAY END AND ALIGNED TAXIWAY

**Unpaved Runway**

Survey Point Locator is the trim line connecting outboard threshold lights or the trim Line connecting outboard threshold day markers. Supporting features include

- The runway end lights sited at another location on approach side of threshold lights (if runway lighted)
- The runway end day markers located at another location on approach side of threshold (if runway unlighted)

Comments**:** Displaced thresholds on unpaved runways are unusual. If this situation is suspected, verify that the runway end is identifiable at another location on the approach side of the threshold.

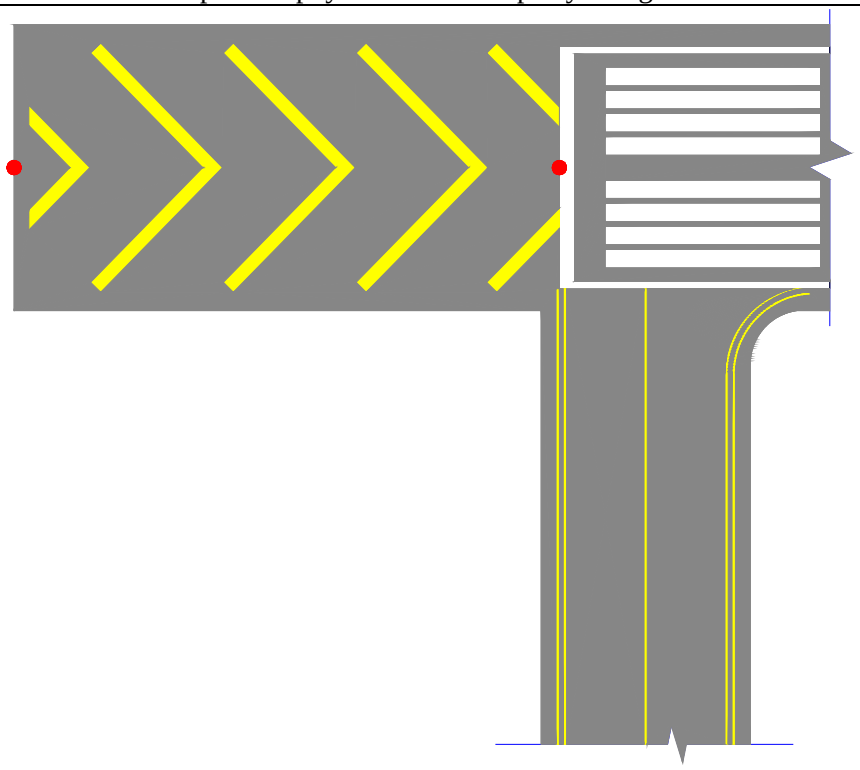
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of a foot | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Specify RunwayEnd Designator |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.5. Airport Control Point – Stopway Ends

| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | |
|---|---|
| **Feature Group** | Geospatial |
| **Feature Class Name** | AirportControlPoint |
| **Feature Type** | Point |

| CADD Standard Requirements | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** Collect point at physical end of stopway along extended centerline of runway. | | | | |



**Displays the standard marking a stopway or blast pad.**

| | | | |
|---|---|---|---|
| **Monumentation** | The selected survey point must be marked and documented for verification by NGS and inclusion in the Airports GIS database. When the ends of the runway surface have been determined, mark the positions using a nail and washer, chisel square, or paint if possible with a distinctive inscription to ensure future identification. Mark the survey point with a nail and washer inscribed with the setting company's name and year. | | |
| **Survey Point Location** | | **Horizontal** | **Vertical** |
| | Concrete Stopway | Survey Point Locator is the limit of construction or the trim line. Supporting Features include stopway chevrons. The stopway end survey point must be on the runway centerline extended. Stopways must be at least as wide as the runway but may be wider. | |
| | Paved/Non-concrete | Survey Point Locator is the limit of construction or the trim line at first good pavement. Supporting Features are the stopway chevrons. The stopway end survey point must be on the runway centerline extended. Stopways must be at least as wide as the runway but may be wider. | |
| | Unpaved | Survey Point Locator is the trim line at an apparent runway/stopway surface end. The stopway end survey points must be on the runway centerline extended. | |

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |

| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
|---|---|---|
| | Hundredth of arc second | Nearest tenth of a foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Specify RunwayEnd Designator |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |

| | |
|---|---|
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.6. Airport Control Point – Profile Points

| | | | | |
|---|---|---|---|---|
| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect three-dimensional points along all usable runways centerlines. Reduction of data must resolve to a profile with points at 10 foot intervals at certificated airports and no more than 50 feet at all airports.* | | | | |
| **Monumentation** | None. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest tenth of a foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Specify Runway Designator |
| runwayEndDesignator (String 3) | Not applicable to this point type |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.7. Airport Control Point – Touchdown Zone Elevation (TDZE)

**Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE).

| **Feature Group** | Geospatial | | | |
|---|---|---|---|---|
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | 3D Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-RNYE- | Runway centerline elevation point | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *The TDZE is the highest elevation along the runway centerline within the first 3000 feet from the threshold and extracted from the centerline profile data.* | | | | |
| **Monumentation** | None. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest tenth of a foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Specify Runway End Designator |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |

| | |
|---|---|
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.8. Airport Control Point – Primary and Secondary Airport Control Stations (PACS/SACS)

| | | | | |
|---|---|---|---|---|
| **Definition:** Use this feature for points on the airfield possessing significant geographic importance, such as the Primary and Secondary Airport Control Stations (PACS/SACS), Runway Intersections, Airport Elevation, centerline perpendicular points for NAVAIDs, Stopway Ends, Profile Points, and the Touchdown Zone Elevation (TDZE). | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | AirportControlPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-SURV-DATA-CTPT- | Survey data (benchmarks and horizontal control points or monuments) | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | | | |
| | **FGDC** | | | |
| | **SDSFIE** | *Control_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Refer to AC 150/5300-16 for guidance on the airport control marks.* | | | | |
| **Monumentation** | None. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | Refer to AC 150/5300-16 for accuracy requirements. | | | |

| Resolution | Geographic Coordinates | Distances and Elevations |
|---|---|---|
| | Thousanth of arc second | Nearest hundredth of a foot |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| permanentId (String 6) | Permanent point identifier assigned by NGS to PACS and SACS [Source: NGS] |
| pointType (Enumeration: CodePointType) | Contains the allowable values of a point type used by the ControlPoint feature. The point types may be supplementally provided as subtypes of ControlPoints for ease of use and clarification. |
| name (VARCHAR2 (50)) | Any commonly used name for the control point. |
| runwayDesignator (String 7) | Not applicable to this point type |
| runwayEndDesignator (String 3) | Not applicable to this point type |
| monumentType (Enumeration: CodeMonumentType) | The type of monument as defined by the Corps of Engineers EM 110-1-1002. |
| description (VARCHAR2 (255)) | The monument description. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| ellipsoidHeight (Real) | The height above the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question. Also called the geodetic height. [Source: NGS] |
| yearOfSurvey (Number 4) | The year of the most recent runway end survey used to compute the ARP |
| dateRecovered (Date) | The date the monument was last field recovered. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915). |
| recoveredCondition (Enumeration: CodeRecoveredCondition) | The condition and type of the marker (witness post) used to identify the location of the monument. |
| fieldBook (String 254) | The field book. |
| globalPositionSystemSuitable (Boolean) | A Boolean indicating GPS suitability. |
| coordinateZone (Enumeration: CodeCoordinateZone) | The State Plane Coordinate System Code for where the airport is primarily located. |
| stampedDesignation (String 50) | The designation stamped onto the monument. |
| epoch (String 10) | Survey epoch used to establish the control point. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.8.9. Coordinate Grid Area

| **Definition:** A 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. | |
|---|---|
| **Feature Group** | Geospatial |
| **Feature Class Name** | CoordinateGridArea |
| **Feature Type** | Line |

| CADD Standard Requirements | | | |
|---|---|---|---|
| **Layer/Level** | **Description** | **Layer/Level** | **Description** |
| C-DETL-GRPH- | Graphics, gridlines, non-text items | S-GRID-MSC3- | Miscellaneous grid lines (Type 3) |
| C-GRID-FRAM- | Frame (bounding frame of an area referenced by a grid) | S-GRID-MSC4- | Miscellaneous grid lines (Type 4) |
| C-GRID-MAJR- | Major grid lines | S-GRID-VERT- | Primary grid lines (vertical) |
| C-GRID-MINR- | Minor grid lines | V-GRID-FRAM- | Frame |
| S-GRID-HORZ- | Primary grid lines (horizontal) | V-GRID-MAJR- | Major grid lines |
| S-GRID-MSC- | Miscellaneous grid lines (Type 1) | V-GRID-MINR- | Minor grid lines |
| S-GRID-MSC2- | Miscellaneous grid lines (Type 2) | | |

| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
|---|---|---|---|---|
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Restricted | | |
| **Equivalent Standards** | **AIXM** | *CoordinateGridArea* | Extension |
| | **FGDC** | *CoordinateGridArea* | |
| | **SDSFIE** | *Coordinate_grid_area* | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | |
| **Related Features** | | | |

| | | | |
|---|---|---|---|
| **Data Capture Rules:** *N/A* | | | |
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | N/A | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | N/A | N/A | |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | The name, code or identifier used to refer to an individual grid cell. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| gridType (Enumeration: CodeGridType) | Code indicating the type of grid. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.8.10. Elevation Contour**

| **Definition:** Connecting points on the surface of the earth of equal vertical elevation representing some fixed elevation interval. | | | | |
|---|---|---|---|---|
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | ElevationContour | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-TOPO-MAJR- | Major contours | | | |
| C-TOPO-MINR- | Minor contours | | | |
| V-TOPO-MAJR- | Major contours | | | |
| V-TOPO-MAJR-IDEN | Major contours | | | |
| V-TOPO-MINR- | Minor contours | | | |
| V-TOPO-MINR-IDEN | Minor contours | | | |
| C-TOPO-MINR-ONEF | Minor contours | | | |
| C-TOPO-MINR-TWOF | Minor contours | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | N/A | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ElevationContour* | | Extension |
| | **FGDC** | *ElevationContour* | | |
| | **SDSFIE** | *elevation_contour_line* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *N/A* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | One-half contour interval | | One-half contour interval | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Five tenths of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Real) | The overall length of the feature. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| contourValue | The elevation of the contour line. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.8.11. Image Area**

| | | | | |
|---|---|---|---|---|
| **Definition:** The image footprint or coverage area. | | | | |
| **Feature Group** | Geospatial | | | |
| **Feature Class Name** | ImageArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| V-AERI-BNDY- | Aerial photograph boundaries | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 3 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *ImageArea* | | Extension |
| | **FGDC** | *ImageArea* | | |
| | **SDSFIE** | *Image_area* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Boundary of aerial imagery.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | Accuracy of the imagery | | N/A | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | N/A | | N/A | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| frameId (String 20) | Image identification number of the covered area. |
| photoDate (Date) | Date the aerial photography was flown. Format for date is YYYYMMDD (i.e. September 15, 1994 = 19940915) |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

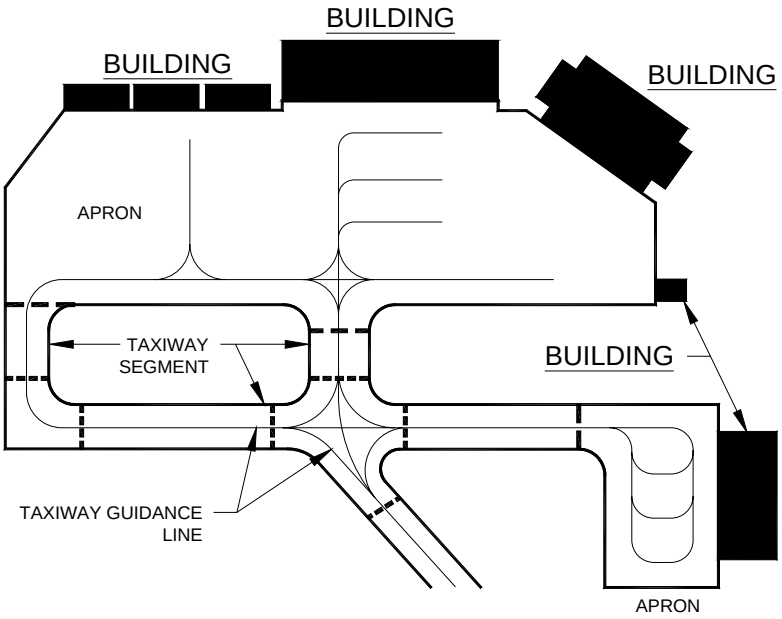
## 5.9. Group: MAN MADE STRUCTURES

### 5.9.1. Building

| | | | | |
|---|---|---|---|---|
| **Definition:** A three-dimensional structure (i.e. hangars, terminals, etc.) modeled with a bounding polygon. | | | | |
| **Feature Group** | Manmade Structures | | | |
| **Feature Class Name** | Building | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| A-ELEV-OTLN- | Building outlines | | | |
| C-BLDG-OTLN- | Buildings and other structures | | | |
| G-PLAN-OTLN- | Floor outline/perimeter/building footprint | | | |
| H-BLDG-OTLN- | Command posts, information centers | | | |
| M-ELEV-OTLN- | Building outlines | | | |
| V-BLDG-OTLN- | Buildings and other structures | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Building* | | Extension |
| | **FGDC** | *Building* | | Extension |
| | **SDSFIE** | *structure_existing_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Determine the terminal building complex, hangars, maintenance facilities, and other prominent buildings directly associated with aircraft operations and directly connected to the apron as individual polygon objects. Collect by field survey methods recently constructed and/or completed buildings not visible on imagery and meeting the above criteria. Extract the building outline feature as the footprint of the building at ground level. Determine the height at the highest point of the corresponding building. The AGL height of the polygon is determined as the difference between the base elevation and top elevation on the roof.*

**NOTE:** *If the building penetrates an OIS or is selected as a representative object, additionally identify, classify and document the building as an ObstructionArea and associated accuracy.*




**Illustrates the collection of airport buildings.**

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| buildingNumber (String 16) | The code indicating the number of the building. |
| structureType (Enumeration: CodeStructureType) | The type of structure. |
| status (Enumeration: codeStatus) | This value differentiates structure entities by operational status. |
| numberOfCurrentOccupants (Integer) | Number of persons currently occupying the structure |
| areaInside (Real) | Total inside area of structure |
| structureHeight (Real) | Maximum height of structure; i.e. AGL height |
| areaFloor (Real) | Total inside floor area |
| lightingType (Enumeration: codeLightingConfigurationType) | A description of the lighting system. |
| markingfeatureType (Enumeration: codeMarkingFeatureType) | The color of the marking(s) |

| | |
|---|---|
| color<br>(Enumeration: codeColor) | The type of the marking(s) |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.9.2. Construction Area

**Definition:** A 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.

| | |
|---|---|
| **Feature Group** | Manmade Structures |
| **Feature Class Name** | ConstructionArea |
| **Feature Type** | Polygon |

**CADD Standard Requirements**

| Layer/Level | Description | Layer/Level | Description |
|---|---|---|---|
| A-STAT-DEMO- | Demolition | L-STAT-FUTR- | Future work |
| A-STAT-DEMO-PHS1 | Demolition - phase 1 | L-STAT-NEWW- | New work |
| A-STAT-DEMO-PHS2 | Demolition - phase 2 | L-STAT-TEMP- | Temporary work |
| A-STAT-DEMO-PHS3 | Demolition - phase 3 | M-STAT-DEMO- | Demolition |
| A-STAT-FUTR- | Future work | M-STAT-DEMO-PHS1 | Demolition - phase 1 |
| A-STAT-NEWW- | New work | M-STAT-DEMO-PHS2 | Demolition - phase 2 |
| A-STAT-TEMP- | Temporary work | M-STAT-DEMO-PHS3 | Demolition - phase 3 |
| C-PROP-CONS- | Construction limits/controls, staging area | M-STAT-FUTR- | Future work |
| C-STAT-DEMO- | Demolition | M-STAT-NEWW- | New work |
| C-STAT-DEMO-PHS1 | Demolition - phase 1 | M-STAT-TEMP- | Temporary work |
| C-STAT-DEMO-PHS2 | Demolition - phase 2 | P-FUEL-NGAS- | Natural gas piping |
| C-STAT-DEMO-PHS3 | Demolition - phase 3 | P-STAT-DEMO- | Demolition |
| C-STAT-FUTR- | Future work | P-STAT-DEMO-PHS1 | Demolition - phase 1 |
| C-STAT-NEWW- | New work | P-STAT-DEMO-PHS2 | Demolition - phase 2 |
| C-STAT-TEMP- | Temporary work | P-STAT-DEMO-PHS3 | Demolition - phase 3 |
| E-STAT-DEMO-PHS1 | Demolition - phase 1 | P-STAT-FUTR- | Future work |

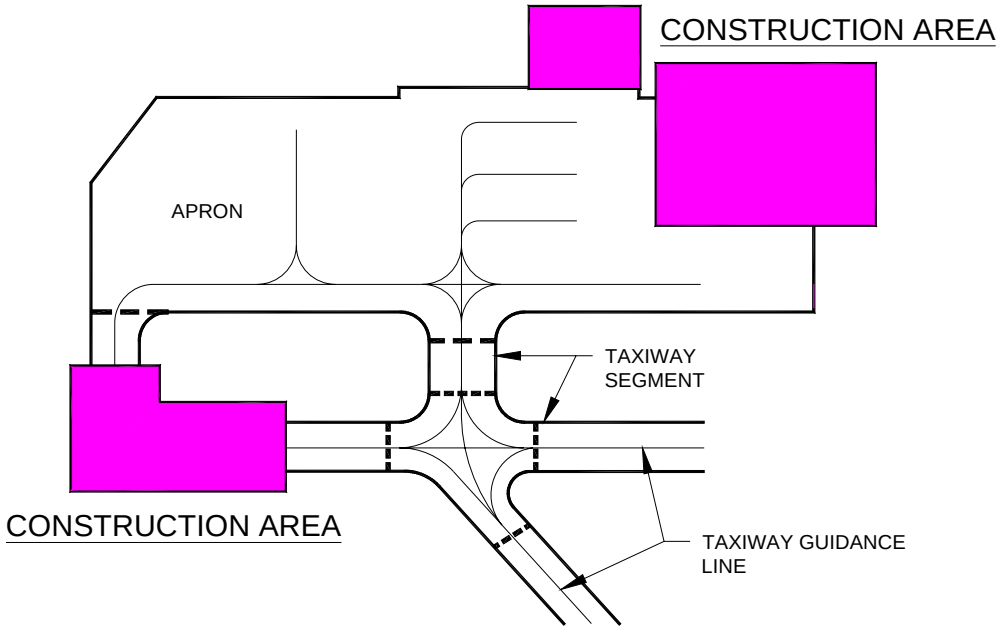
| | | | |
|---|---|---|---|
| E-STAT-DEMO-PHS2 | Demolition - phase 2 | P-STAT-NEWW- | New work |
| E-STAT-DEMO-PHS3 | Demolition - phase 3 | P-STAT-TEMP- | Temporary work |
| F-STAT-DEMO- | Demolition (**NOTE:** *comprehensive demolition is handled in Model File Type: Demolition Plan*) | S-STAT-DEMO- | Demolition |
| F-STAT-DEMO-PHS1 | Demolition - phase 1 | S-STAT-DEMO-PHS1 | Demolition - phase 1 |
| F-STAT-DEMO-PHS2 | Demolition - phase 2 | S-STAT-DEMO-PHS2 | Demolition - phase 2 |
| F-STAT-DEMO-PHS3 | Demolition - phase 3 | S-STAT-DEMO-PHS3 | Demolition - phase 3 |
| F-STAT-FUTR- | Future work | S-STAT-FUTR- | Future work |
| F-STAT-NEWW- | New work | S-STAT-NEWW- | New work |
| F-STAT-TEMP- | Temporary work | S-STAT-TEMP- | Temporary work |
| G-SITE-OTLN- | Site plan - key map | T-STAT-DEMO-PHS1 | Demolition - phase 1 |
| H-STAT-DEMO-PHS1 | Demolition - phase 1 | T-STAT-DEMO-PHS2 | Demolition - phase 2 |
| H-STAT-DEMO-PHS2 | Demolition - phase 2 | T-STAT-DEMO-PHS3 | Demolition - phase 3 |
| H-STAT-DEMO-PHS3 | Demolition - phase 3 | V-STAT-DEMO- | Demolition (**NOTE:** *comprehensive demolition is handled in Model File Type: Demolition Plan*) |
| L-STAT-DEMO- | Demolition (**NOTE:** *comprehensive demolition is handled in Model File Type: Demolition Plan*) | V-STAT-FUTR- | Future work |
| L-STAT-DEMO-PHS1 | Demolition - phase 1 | V-STAT-NEWW- | New work |
| L-STAT-DEMO-PHS2 | Demolition - phase 2 | V-STAT-TEMP- | Temporary work |
| L-STAT-DEMO-PHS3 | Demolition - phase 3 | | |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 161 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Restricted | | |
| **Equivalent Standards** | **AIXM** | *ConstructionArea* | Extension |
| | **FGDC** | *ConstructionArea* | Extension |
| | **SDSFIE** | *structure_existing_site* | |
| **Documentation and Submission Requirements** | None | | |

| **Related Features** | |
|---|---|

**Data Capture Rule:** *Capture the outer edges of the area under construction. The limits could be a combination of building lines, construction fence lines, or natural features such as streams or rivers.*




**Illustrates the collection of an airport construction area.**

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| projectName (String 60) | The name of the construction project |
| projectStatus (Enumeration: CodeProjectStatus) | The status of the construction project |
| coordinationContact (String 75) | Airport, emergency, airline, tenant, and contractor personnel who are responsible for coordinating on-airport construction work |
| userFlag (String 254) | An 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. |

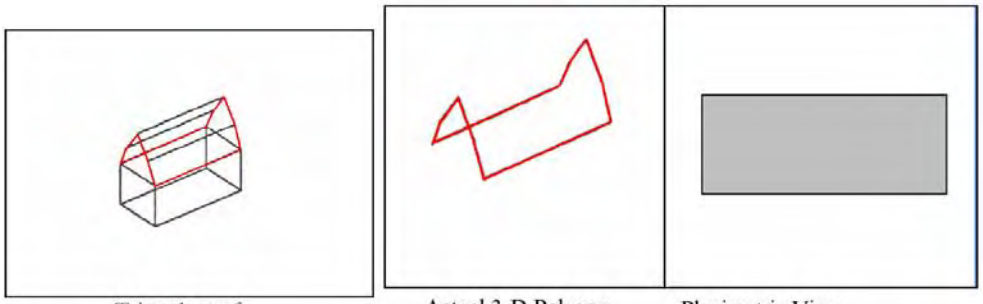
| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.9.3. Roof

| | | | | |
|---|---|---|---|---|
| **Definition:** Structure on top of buildings, garages and other similar structures. | | | | |
| **Feature Group** | Manmade Structures | | | |
| **Feature Class Name** | Roof | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| A-ROOF-OTLN | Roof outline | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *None* | | |
| | **FGDC** | *None* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the roof outline to represent the outer edge of the roof as well as the break line or ridge lines of a sloped or multiple level roof. On flat roofs with elevator shafts or large HVAC units on the roof collect these items at the top of the units and shown as a roof within a roof feature.*

**NOTE:** *If the roof penetrates an OIS or is selected as a representative object, additionally identify, classify and document the roof as an ObstructionArea and associated accuracy.*




**Top Perimeter of Building Superimposed over Imagery**

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |

| | | | | |
|---|---|---|---|---|
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | Name of the feature. | | | |
| description (VARCHAR2 (255)) | Description of the feature. | | | |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. | | | |
| buildingNumber (String 16) | The code indicating the number of the building | | | |
| userFlag (String 254) | An 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. | | | |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. | | | |

### 5.9.4. Fence

| | | | | |
|---|---|---|---|---|
| **Definition:** Any fencing (chain-link, razor wire, PVC, etc.) [Source: FAA] | | | | |
| **Feature Group** | Manmade Structures | | | |
| **Feature Class Name** | Fence | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-DETL-FENC- | Fencing | | | |
| C-SITE-FENC- | Fences and handrails | | | |
| L-DETL-FENC- | Fencing | | | |
| L-SITE-FENC- | Fencing | | | |
| S-SAFE-FENC- | Fencing | | | |
| V-SITE-FENC- | Fences and handrails | | | |
| C-SECU-FENC- | Security fencing | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 5 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 1 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Fence* | | Extension |
| | **FGDC** | *Fence* | | Extension |
| | **SDSFIE** | *fence_line* | | |
| **Documentation and Submission Requirements** | No documentation is required. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect line along fence line.*<br><br>**NOTE:** *If the fence penetrates an OIS or is selected as a representative object, additionally identify, classify and document the fence as an Obstacle and associated accuracy.* | | | | |

| | | | | |
|---|---|---|---|---|
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | Name of the feature. | | | |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. | | | |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. | | | |
| type (String 16) | Indicate the fencing material used. | | | |
| height (Real) | The overall distance from the surface of the ground to the top of the fence. | | | |
| userFlag (String 254) | An 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. | | | |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. | | | |

### 5.9.5. Gate

| | | | | |
|---|---|---|---|---|
| **Definition:** A gate is an opening in a fence or other type of barrier between areas. | | | | |
| **Feature Group** | Manmade Structures | | | |
| **Feature Class Name** | Gate | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| L-DETL-GATE- | Gate | | | |
| L-SITE-GATE- | Gate | | | |
| C-SITE-GATE- | Gates along fences or other barriers intended to restrict access | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 214 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *GateLine* | | Extension |
| | **FGDC** | *GateLine* | | Extension |
| | **SDSFIE** | *gate_line* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |

| | | | | |
|---|---|---|---|---|
| **Data Capture Rules:** *Collect center of gate from post-to-post.*<br><br>**NOTE:** *If the gate penetrates an OIS or is selected as a representative object, additionally identify, classify and document the gate as an Obstacle and associated accuracy.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name, code or identifier used to identify the gate. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 240 characters. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| type (VARCHAR2 (50)) | The gate material and method of construction. |
| length (Real) | The overall distance from one end of the gate to the other. |
| height (Real) | The overall distance from the surface of the top of the gate. |
| attended (Boolean) | A Boolean indicating whether the gate is tended by a guard or other individual. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.9.6. Tower

| **Definition:** A structure created, by man, to facilitate an activity at an elevated level above the ground. | | | | |
|---|---|---|---|---|
| **Feature Group** | Manmade Structures | | | |
| **Feature Class Name** | Tower | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-STRC-TOWR- | Tower | | | |
| E-POLE-GUYS- | Guy equipment | | | |
| V-POLE-GUYS- | Guy equipment | | | |
| V-STRC-TOWR- | Tower | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 0 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *VerticalStructure* | | Extension |
| | **FGDC** | *Tower* | | Extension |

| | | |
|---|---|---|
| | **SDSFIE** | *tower_site* |
| **Documentation and Submission Requirements** | No documentation is required. | |
| **Related Features** | | |

**Data Capture Rules:** *Collect the point at the highest location of the tower. When surveying guyed structures, capture any guys penetrating a surface separately from the structure itself. Determine and document the point where the guy wires penetrate the OIS at a distance greater than 100 feet from the actual structure, identify it as a separate point object.*

**NOTE:** *If the tower penetrates an OIS or is selected as a representative object, additionally identify, classify and document the tower as an Obstacle and associated accuracy.*

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest foot | |

**Feature Attributes**

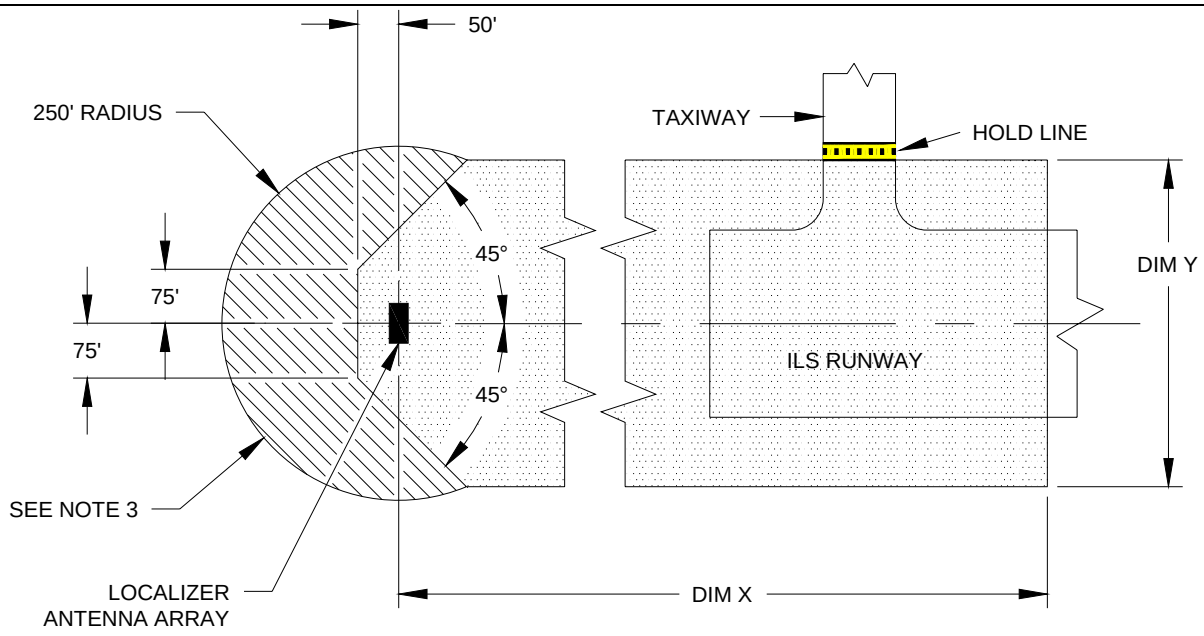
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| verticalStructureMaterial (Enumeration: CodeVerticalStructureMaterial) | Classifies the predominant material of the vertical object |
| lightCode (Boolean) | A code indicating that the tower is lighted [Source: AIXM] |
| lightingType (Enumeration: codeLightingConfigurationType) | A description of the lighting system. Lighting system classifications are Approach; Airport; Runway; Taxiway; and Obstruction |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking(s) |
| color (Enumeration: codeColor) | The color of the marking(s) |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |
| structureHeight (Real) | Maximum height of structure; i.e. AGL height |

## 5.10. Group: NAVIGATIONAL AIDS

All of the different navigational aids are represented using a single feature type. To assist the data producer in identifying the different aids, each individual navigational aids is defined separately even though they are all represented by the single feature type NavigationalAidEquipment. Accuracies differ for many navigational aids. Be sure to collect the navigational aid within the accuracy stated in each navigational aid table.

### 5.10.1. NAVAID Critical Area

| | | | | |
|---|---|---|---|---|
| **Definition:** A 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 and air traffic. The drawings included in this table are representative, be sure to refer to the official source to ensure the appropriate area is protected. [Source: FAA Order 6750.16C] | | | | |
| **Feature Group** | NavigationalAids | | | |
| **Feature Class Name** | NavaidCriticalArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRF-AIDS-CRIT | Airfield Navigational Aid - Critical Area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ObstacleAssessmentAreaExtension* | | Extension |
| | **FGDC** | *NavigationalAidCriticalArea* | | Extension |
| | **SDSFIE** | *airfield_buffer_zone_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect a closed polygon encompassing the greatest horizontal extents of the critical area for the NAVAID. Critical areas are normally associated with the localizer, glideslope, MLS azimuth, MLS elevation, and Precision Approach Radars. If necessary, identify the area using multiple polygons. Adjacent polygons must have shared edges and vertices and must not overlap polygons of the same feature.* | | | | |




DIMENSIONS X AND Y VALUES (IN FEET)

| | DIM X | DIM Y |
|---|---|---|
| CATEGORY I (SEE NOTE 4) | 2000 | 400 |
| CATEGORY II/III (SEE NOTE 5) | 2000 | 400 |
| CATEGORY II | 4000 | 500 |
| CATEGORY III | 7000 | 500 |

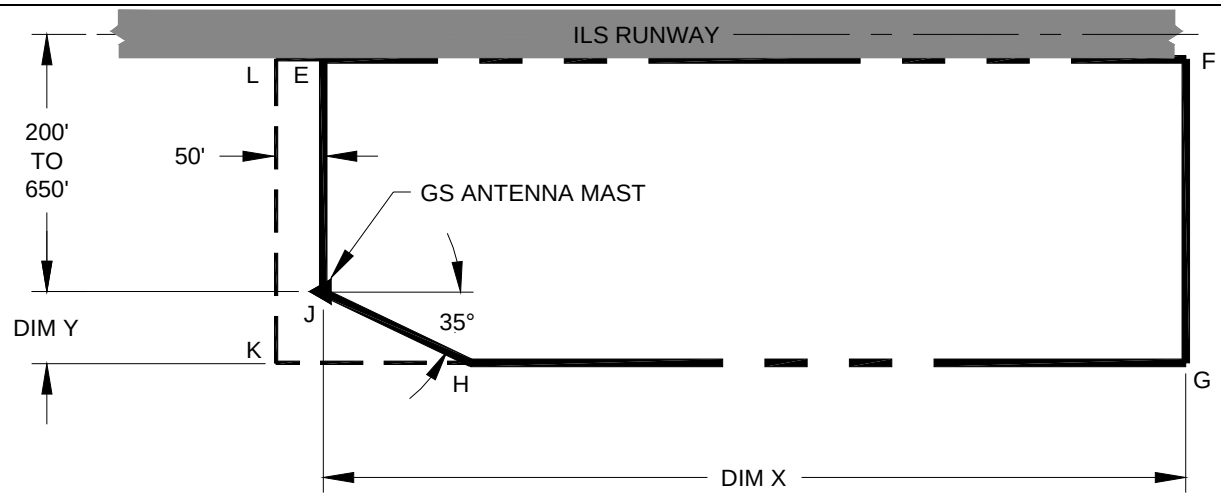
LEGEND

AREA A

AREA B

NOTES:

1. THE CRITICAL AREA IS INDICATED BY THE SHADED ZONES.
2. HOLD LINE/SIGNS INDICATE THE POSITION BEYOND WHICH AIRCRAFT/VEHICLES WILL REQUIRE ATCT AUTHORIZATION BEFORE PROCEEDING ON OR ACROSS THE RUNWAY.
3. AREA B IS DELETED FROM THE CRITICAL AREA WHEN A UNIDIRECTIONAL LOCALIZER ANTENNA IS INSTALLED. THE STANDARD LOG-PERIODIC DIPOLE ANTENNA ARRAY IS IN THIS CATEGORY.
4. FOR 8-ELEMENT LOCALIZER ARRAYS WITH COURSE WIDTHS LESS THEN 4 DEGREES AND RUNWAYS WHICH OPERATE B-747 SIZE OR LARGER AIRCRAFT, THE Y DIMENSION SHALL BE 600 FEET.
5. THESE DIMENSIONS APPLY WHERE AIRCRAFT SIZE IS EQUAL TO OR LESS THAN 135 FEET IN LENGTH OR 42 FEET IN HEIGHT(I.E.B-737).
6. CRITICAL AREAS FOR LDA, SDF, AND THE OFFSET LOCALIZER FACILITIES ARE THE SAME AS CATEGORY I, BUT ARE CENTERED ABOUT THE COURSE LINE.




NOTES:

1. THE CRITICAL AREA IS DEFINED BY THE PENTAGON "EFGHJ".

2. ALL AIRCRAFT MAY BE PARKED AS CLOSE AS 50' BEHIND A GLIDESLOPE MAST WITH DIRECTIONAL ANTENNAS AS DEFINED BY LINE "KL".

3.

| FACILITY TYPE | CATEGORY I | | CATEGORY II/III | |
|---|---|---|---|---|
| | DIM X | DIM Y | DIM X | DIM Y |
| ALL IMAGE GLIDE SLOPES | | | | |
| SMALL AIRCRAFT ● | 800 | 100 | 800 | 100 |
| NULL REFERENCE | | | | |
| MEDIUM AIRCRAFT ●● | 2000 | 200 | 2500 | 200 |
| LARGE AIRCRAFT ●●● | 3100 | 200 | 3200 | 200 |
| SIDEBAND AND CAPTURE EFFECT | | | | |
| MEDIUM AND LARGE AIRCRAFT ●●/●●● | 1300 | 200 | 1300 | 200 |

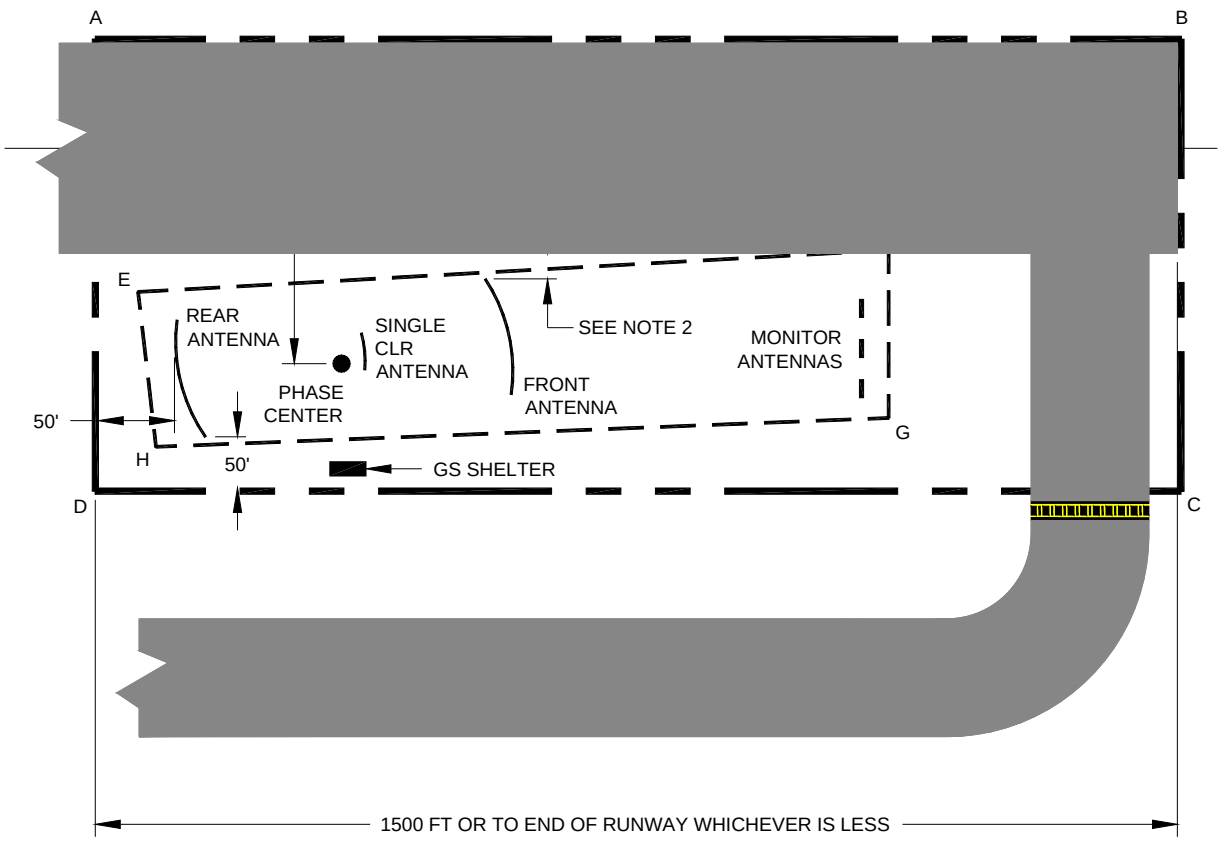
ALL DISTANCES ARE IN FEET AND REPRESENT THE MINIMUM ALLOWABLE DISTANCES FROM THE NEAREST POINT ON THE AIRCRAFT LONGITUDINAL AXIS (LINE FROM NOSE TO TAIL) TO THE GLIDE SLOPE ANTENNA, AS DEFINED IN FIGURE 1-3.

● SMALL AIRCRAFT ARE DEFINED AS AIRCRAFT WITH DIMENSIONS LESS THAN 60' IN LENGTH AND 20' IN HEIGHT (I.E. KINGAIR). THIS INCLUDES ALL SURFACE VEHICLES AND HELICOPTERS.

●● MEDIUM AIRCRAFT ARE DEFINED AS AIRCRAFT WITH DIMENSIONS LESS THAN 160' IN LENGTH AND 38' IN TAIL HEIGHT (I.E. B-737, MD-80).

●●● LARGE AIRCRAFT ARE DEFINED AS AIRCRAFT GREATER THAN 160' IN LENGTH OR GREATER THAN 38' IN TAIL HEIGHT.

THE SMALL, MEDIUM AND LARGE AIRCRAFT SIZES ARE BASED UPON THE DIMENSIONS USED IN COMPUTER MODELING OF CRITICAL AREAS AND APPLY TO THIS DOCUMENT ONLY.




NOTES:

1. THIS DISTANCE IS APPROXIMATELY 200 FEET DEPENDING ON RUNWAY WIDTH. REFER TO FAA DRAWINGS D-6226-1 AND D-6226-2 FOR INSTALLATION LAYOUT.
2. THIS DISTANCE SHALL NOT BE LESS THAN 25 FEET.
3. THE CRITICAL AREA IS DEFINED BY THE AREA "ABCD". UNRESTRICTED TAXIING OR HOLDING AIRCRAFT IS PERMITTED IN UNSHAPED AREA.
4. SNOW REMOVAL AREA IS DEFINED AS "EFGH".

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Tenth of foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| dimensionX (Integer) | The linear dimension of the critical area in the X axis. |

| | |
|---|---|
| dimensionY (Integer) | The linear dimension of the critical area in the Y axis. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

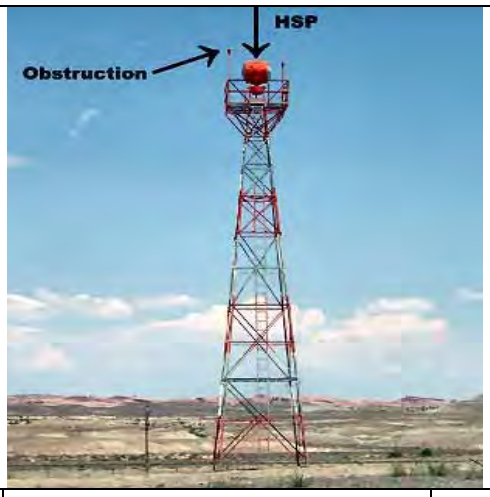
### 5.10.2. Navaid Equipment – Airport Beacon (APBN)

**Definition:** A visual NAVAID operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport. At military airports, the beacons flash alternately white and green, but are differentiated from civil beacons by dual-peaked (two quick) white flashes between the green flashes.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipmentExtension* | | Extension |
| | **FGDC** | *NavigationalAidEquipment* | | |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the horizontal and vertical positions of the NAVAID using the survey point identified below. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID using the OBSTACLE feature type and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.*

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of cover or axis of rotation | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

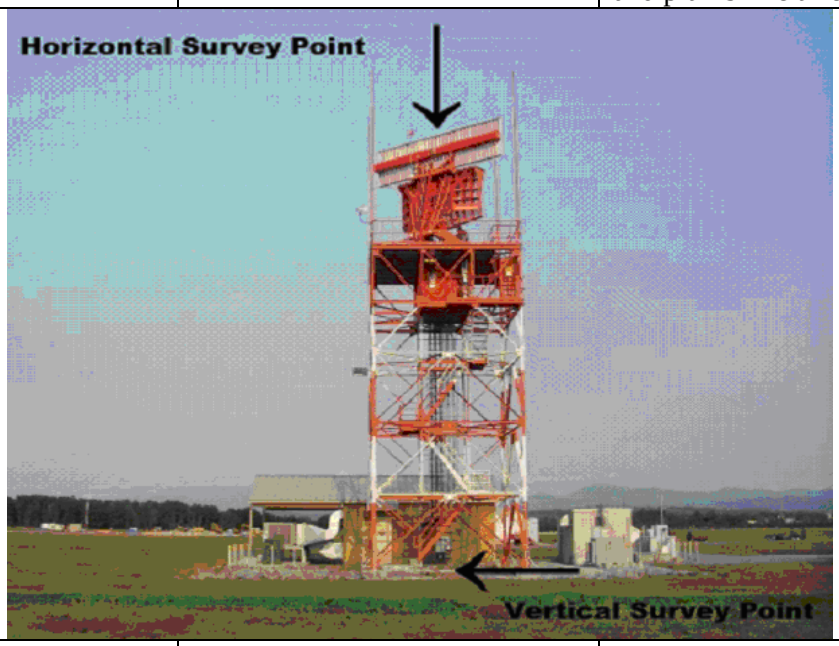
**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidEquipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System. |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.3. Navaid Equipment – Air Route Surveillance Radar (ARSR) or Airport Surveillance Radar (ASR)

| | |
|---|---|
| **Definition:** These radars are used to detect and display an aircraft´s position while operating in the terminal area (ASR) and en route (ARSR) between terminal areas. | |
| **Feature Group** | Navigational Aids |
| **Feature Class Name** | NavaidEquipment |
| **Feature Type** | Point |

<table>
<tr><td colspan="5">CADD Standard Requirements</td></tr>
<tr><td>Layer/Level</td><td colspan="4">Description</td></tr>
<tr><td>C-AFLD-AIDS-</td><td colspan="4">Airfield Navigational Aid -</td></tr>
<tr><td></td><td>Color</td><td>Line Type</td><td>Line Weight</td><td>Symbol</td></tr>
<tr><td>AutoDesk Standards</td><td>4</td><td rowspan="2">Continuous</td><td>1</td><td rowspan="2">User Defined</td></tr>
<tr><td>MicroStation Standards</td><td>7</td><td>7</td></tr>
<tr><td>Information Assurance Level</td><td colspan="4">Unclassified</td></tr>
<tr><td rowspan="3">Equivalent Standards</td><td>AIXM</td><td colspan="2">NavaidEquipment</td><td>Extension</td></tr>
<tr><td>FGDC</td><td colspan="2">NavaidEquipmentExtension</td><td>Extension</td></tr>
<tr><td>SDSFIE</td><td colspan="3">navigational_aid_point</td></tr>
<tr><td>Documentation and Submission Requirements</td><td colspan="4">Document this feature as described in paragraphs 1.5.2 and 1.5.3.</td></tr>
<tr><td>Related Features</td><td colspan="4"></td></tr>
<tr><td colspan="5">Data Capture Rules: Collect the horizontal and vertical positions of the NAVAID using the survey point identified below. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as using the OBSTACLE feature type and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.</td></tr>
<tr><td>Monumentation</td><td colspan="4">No monumentation required.</td></tr>
<tr><td rowspan="2">Survey Point Location</td><td colspan="2">Horizontal</td><td colspan="2">Vertical</td></tr>
<tr><td colspan="2">Center of cover or axis of rotation</td><td colspan="2">The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP.</td></tr>
<tr><td colspan="5"> 
</td></tr>
<tr><td rowspan="2">Accuracy Requirements (in feet)</td><td rowspan="2">Horizontal</td><td colspan="2">Vertical</td></tr>
<tr><td>Orthometric</td><td>Ellipsoidal</td></tr>
<tr><td>± 10 ft</td><td>± 20 ft</td><td>N/A</td></tr>
<tr><td rowspan="2">Resolution</td><td colspan="2">Geographic Coordinates</td><td colspan="2">Distances and Elevations</td></tr>
<tr><td colspan="2">Hundredth of arc second</td><td colspan="2">Nearest one foot</td></tr>
</table>

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |

| | |
|---|---|
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

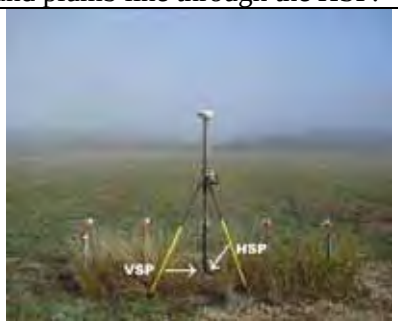
### 5.10.4. Navaid Equipment – Approach Light System (ALS)

**Definition:** An airport lighting facility providing visual guidance to landing aircraft by radiating light beams in a directional pattern the pilot uses to align the aircraft with the extended centerline of the runway on final approach for landing. Some airports have Condenser-Discharge Sequential Flashing Lights or Sequenced Flashing Lights in conjunction with the ALS.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the horizontal and vertical positions of the NAVAID using the survey point identified below. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as using the OBSTACLE feature type and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.*

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |

| | | |
|---|---|---|
| | Horizontal center of the center light of the first and last lights rows | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |
|  Pilot's perspective of an ALSF-2. |   Collecting the first light or center light of the first row. |   Collecting the last light or center light of last row. |

Types of Approach Light Systems are:

**1.** ALSF-1- Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.

**2.** ALSF-2- Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.

**3.** SSALF- Simplified Short Approach Light System with Sequenced Flashing Lights.

**4.** SSALR- Simplified Short Approach Light System with Runway Alignment Indicator Lights.

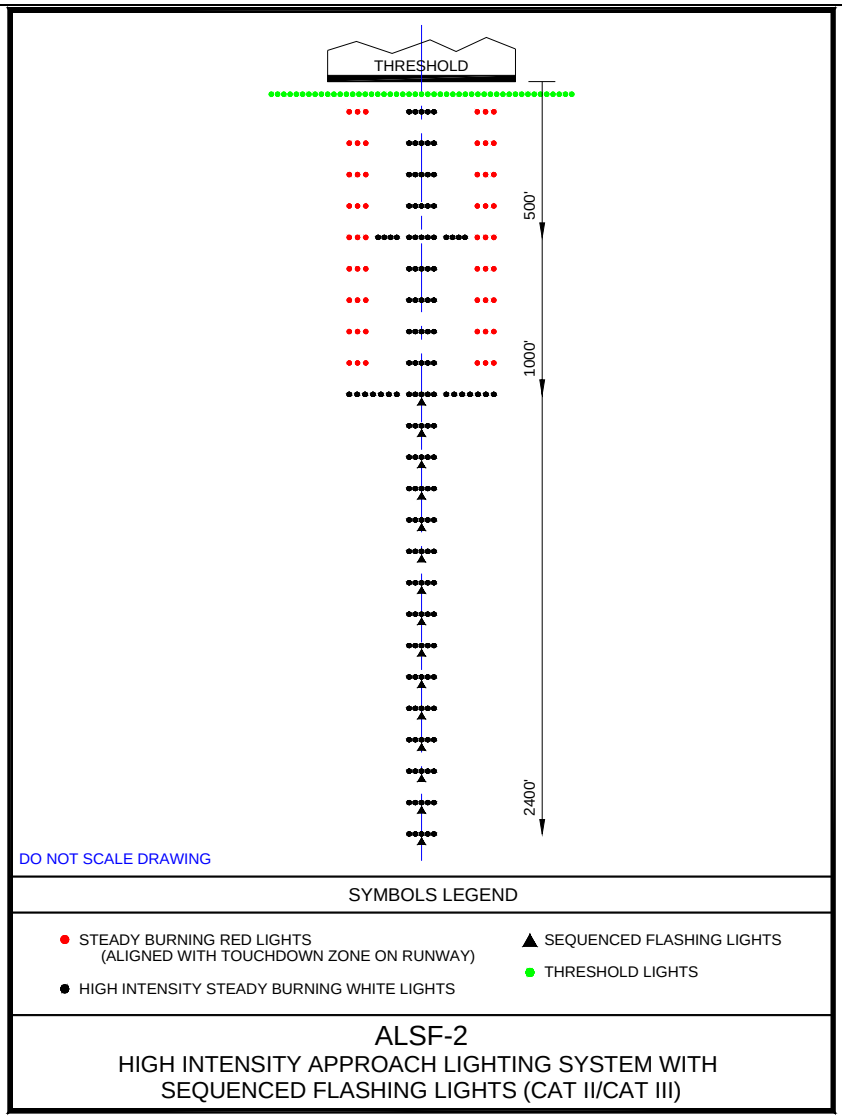
**5.** MALSF- Medium Intensity Approach Light System with Sequenced Flashing Lights.

**6.** MALSR- Medium Intensity Approach Light System with Runway Alignment Indicator Lights.

**7.** LDIN- Lead-in-light system.

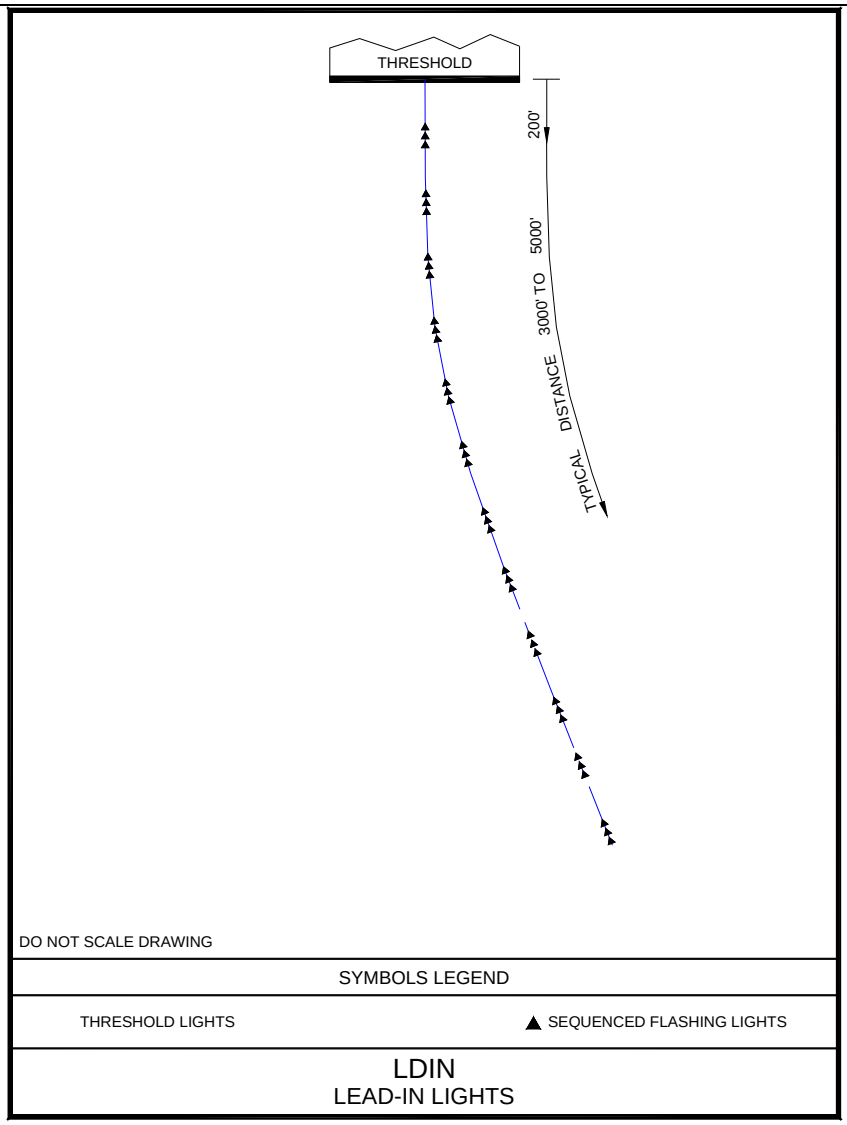
**8.** RAIL- Runway Alignment Indicator Lights- Sequenced Flashing Lights which are installed only in combination with other light systems.

**9.** ODALS- Omnidirectional Approach Lighting System.

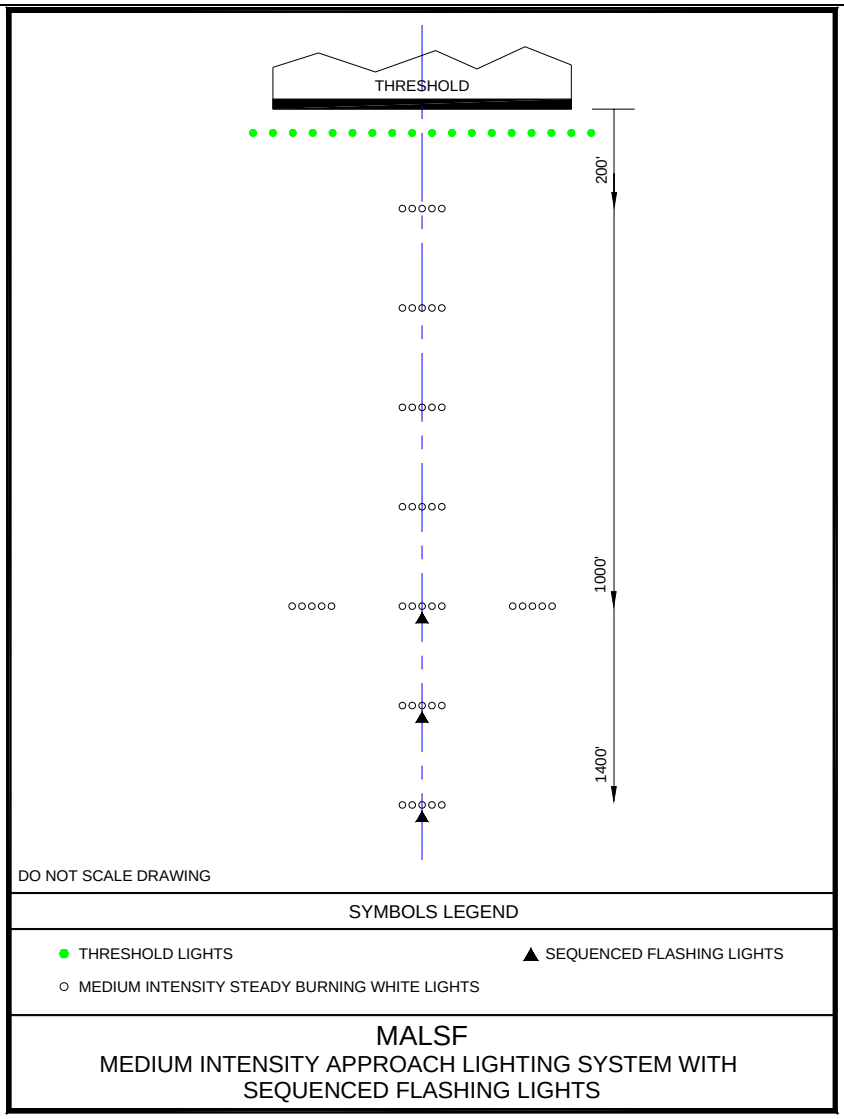



ALSF-2
HIGH INTENSITY APPROACH LIGHTING SYSTEM WITH SEQUENCED FLASHING LIGHTS (CAT II/CAT III)

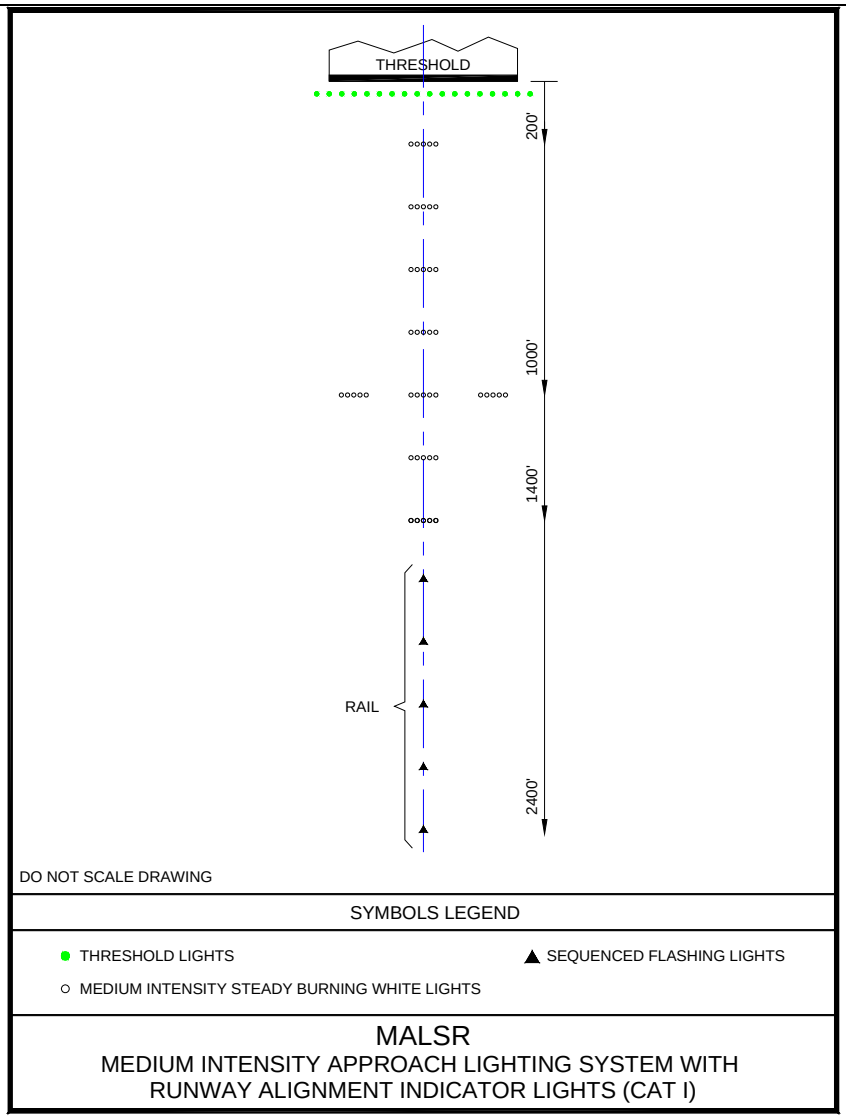
The ALSF-2 is a system of light bars and barrettes in the approach zone immediately ahead of the runway threshold. The standard length of an ALSF-2 is 3000 feet unless terrain or other local conditions prevent a full length installation. Then the length may be shortened to not less than 2400 feet. The ALSF-2 consists of centerline light barrettes, sequence flashing lights, 1000-foot crossbar, 500-foot crossbar, side row barrettes, and threshold lights. A barrette is three or more lights closely spaced in a transverse line so that from a distance they appear as a single short illuminated bar. For the ALSF-2, the length of a barrette shall not exceed 15 feet and the center-to-center spacing of the lights shall not exceed 5 feet.



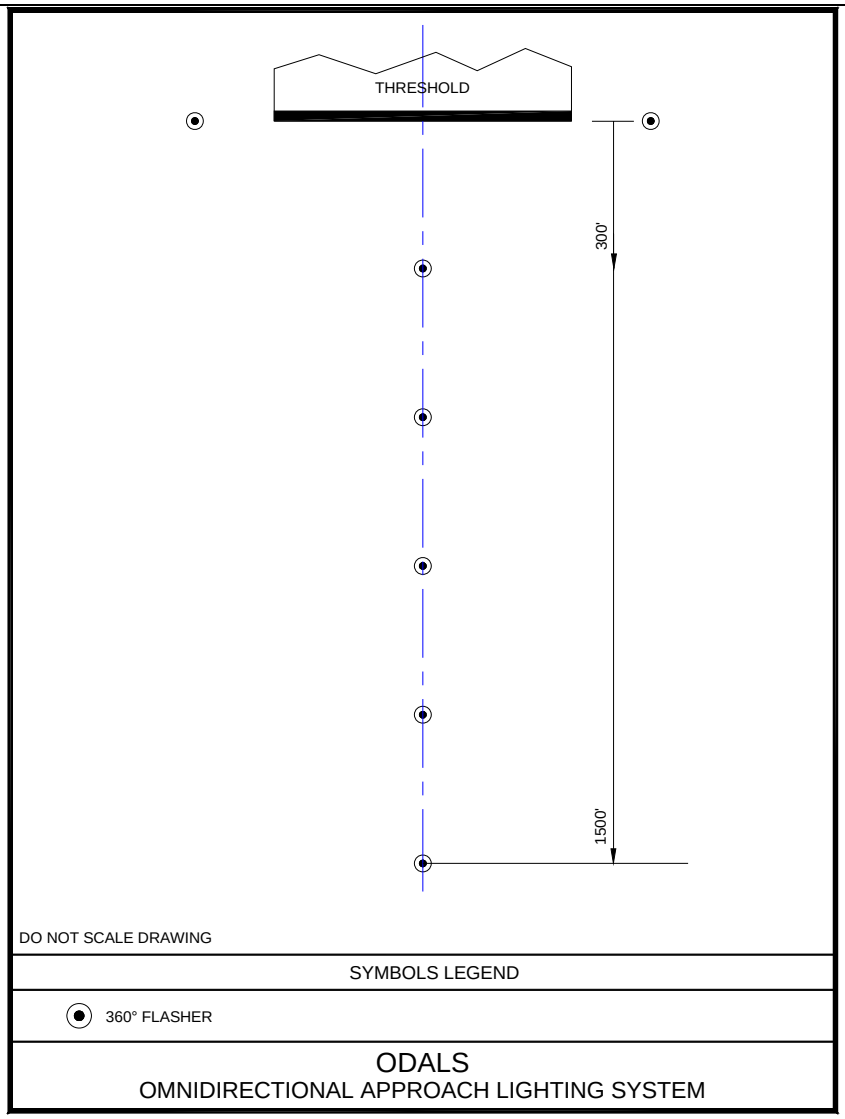

The LDIN consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.



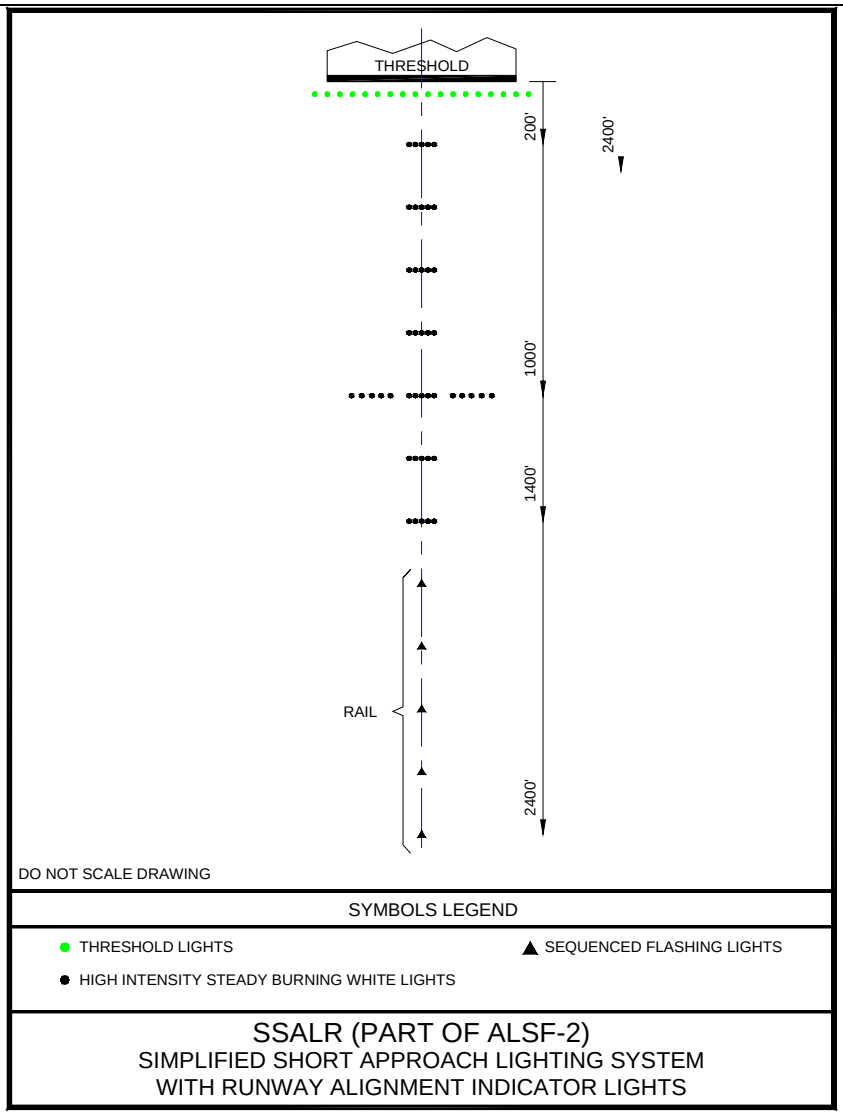

A MALSF is a subset of MALSR. A MALSR has 45 lights, 5 flashers, and is 2400 ft in length. A MALSF has 45 lights, 3 flashers, and is 1400 ft in length. MALS has 45 lights, no flashers, and is 1400 ft in length.




The MALSR is a system that supports Category I instrument approaches. It is a medium intensity light system that identifies the extended runway centerline from threshold to 2,400 feet before the threshold. The MALSR supports Category I instrument approaches and presents to the pilot the illusion of a ball of light traveling from the outer end of the system to a point approximately 1,400 feet from the end of the runway. A row of green lights marks the threshold of the runway.




The ODALS consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.




A SSALR System is a high intensity approach lighting system that provides a visual lighting path for landing aircraft. It usually is a 2400-foot-long array of lights but can be longer or shorter depending on local terrain and requirements.

A typical SSALR system consist of the following light fixture components:

• 9 light bars each with 5 steady burning white fixtures

• 5 sequence flashing white fixtures

• Threshold bar of 18 steady burning green fixtures.

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| **Attribute (Datatype)** | **Description** |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |

| | |
|---|---|
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.5. Navaid Equipment – Back Course Marker (BCM)

| | | | | |
|---|---|---|---|---|
| **Definition:** Provides runway alignment aircraft guidance on approach. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | Extension | |
| | **FGDC** | *NavaidEquipmentExtension* | Extension | |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the horizontal and vertical positions of the NAVAID using the survey point identified below. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as using the OBSTACLE feature type and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | | |
| | Center of antenna array. | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | | |
| | | **Orthometric** | **Ellipsoidal** | |
| | ± 10 ft | ± 20 ft | N/A | |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | | |
| | Hundredth of arc second | Nearest one foot | | |

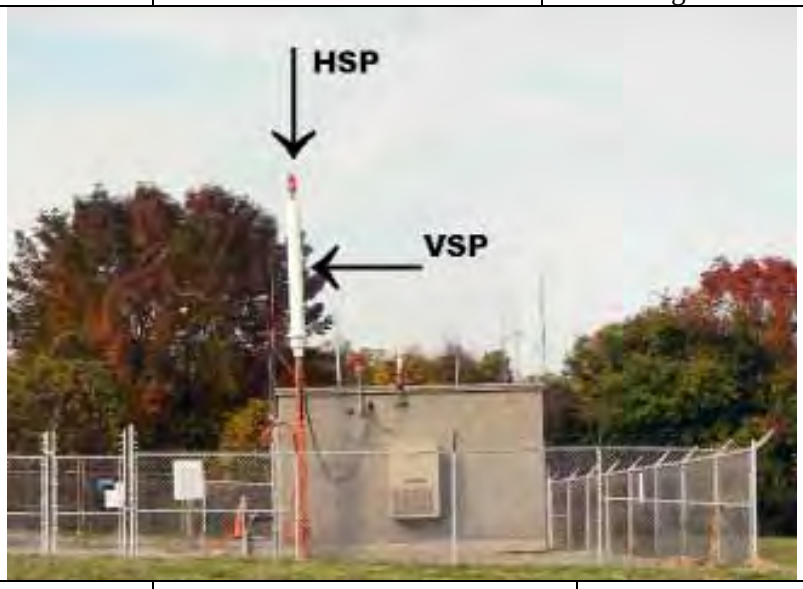
| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |

| | |
|---|---|
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.6. Navaid Equipment – Distance Measuring Equipment (DME)

<table>
<tr><td colspan="5">Definition: Provides distance (and in some systems groundspeed) information only from the ground facility to aircraft.</td></tr>
<tr><td>Feature Group</td><td colspan="4">Navigational Aids</td></tr>
<tr><td>Feature Class Name</td><td colspan="4">NavaidEquipment</td></tr>
<tr><td>Feature Type</td><td colspan="4">Point</td></tr>
<tr><td colspan="5">CADD Standard Requirements</td></tr>
<tr><td>Layer/Level</td><td colspan="4">Description</td></tr>
<tr><td>C-AFLD-AIDS-</td><td colspan="4">Airfield Navigational Aid</td></tr>
<tr><td></td><td>Color</td><td>Line Type</td><td>Line Weight</td><td>Symbol</td></tr>
<tr><td>AutoDesk Standards</td><td>4</td><td rowspan="2">Continuous</td><td>1</td><td rowspan="2">User Defined</td></tr>
<tr><td>MicroStation Standards</td><td>7</td><td>7</td></tr>
<tr><td>Information Assurance Level</td><td colspan="4">Unclassified</td></tr>
<tr><td rowspan="3">Equivalent Standards</td><td>AIXM</td><td colspan="2">NavaidEquipment</td><td>Extension</td></tr>
<tr><td>FGDC</td><td colspan="2">NavaidEquipmentExtension</td><td>Extension</td></tr>
<tr><td>SDSFIE</td><td colspan="3">navigational_aid_point</td></tr>
<tr><td>Documentation and Submission Requirements</td><td colspan="4">Document this feature as described in paragraphs 1.5.2 and 1.5.3.</td></tr>
<tr><td>Related Features</td><td colspan="4"></td></tr>
<tr><td colspan="5">Data Capture Rules: Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.</td></tr>
<tr><td>Monumentation</td><td colspan="4">No monumentation required.</td></tr>
<tr><td>Survey Point Location</td><td colspan="2">Horizontal</td><td colspan="2">Vertical</td></tr>
<tr><td>DME or DME paired with a LOC</td><td colspan="2">Center of antenna cover.</td><td colspan="2">Center of antenna cover.</td></tr>
</table>

| | | |
|---|---|---|
| DME frequency paired with MLS azimuth, NDB or VOR | Center of antenna cover | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 1 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

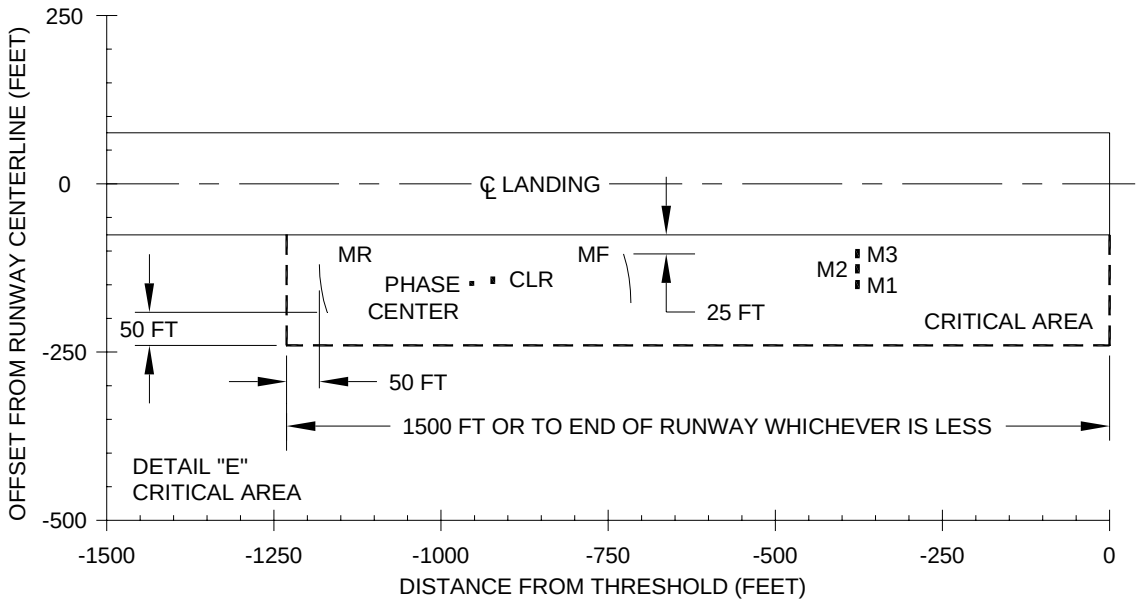
**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |

| | |
|---|---|
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.7. Navaid Equipment –Glide Slope – End Fire (GS)

| | | | | |
|---|---|---|---|---|
| **Definition:** Provides vertical guidance for aircraft during approach and landing. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Phase center reference point. | | Phase center reference point. | |




ABBREVIATIONS USED ABOVE:

CLR: CLEARANCE SIGNAL TRANSMITTING ANTENNA

MR: REAR MAIN SIGNAL TRANSMITTING

MF: FRONT MAIN SIGNAL TRANSMITTING

M1, M2, M3: SIGNAL MONITOR ANTENNAS

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| **Attribute (Datatype)** | **Description** |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |

| | |
|---|---|
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System. |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.8. Navaid Equipment – Fan Marker (FM)**

| | | | | |
|---|---|---|---|---|
| **Definition:** Electronic NAVAID that provides horizontal (alignment) guidance for aircraft on a final approach. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | | | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of antenna array. | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest one foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 240 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.9. Navaid Equipment – Glideslope (GS)**

| | | | | |
|---|---|---|---|---|
| **Definition:** Provides vertical guidance for aircraft during approach and landing. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of Antenna Supporting Structure | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |


| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 1 ft | ± 0.25 ft | ± 0.20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |

| | |
|---|---|
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.10.Navaid Equipment – Ground Controlled Approach (GCA) Touchdown Reflectors

| | |
|---|---|
| **Definition:** Electronic NAVAID equipment that provides precision approach information for incoming aircraft. | |
| **Feature Group** | Navigational Aids |

| **Feature Class Name** | NavaidEquipment | | | |
|---|---|---|---|---|
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.*

| **Monumentation** | No monumentation required. | |
|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of Antenna Array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 10 ft | ± 20 ft | ± 20 ft |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

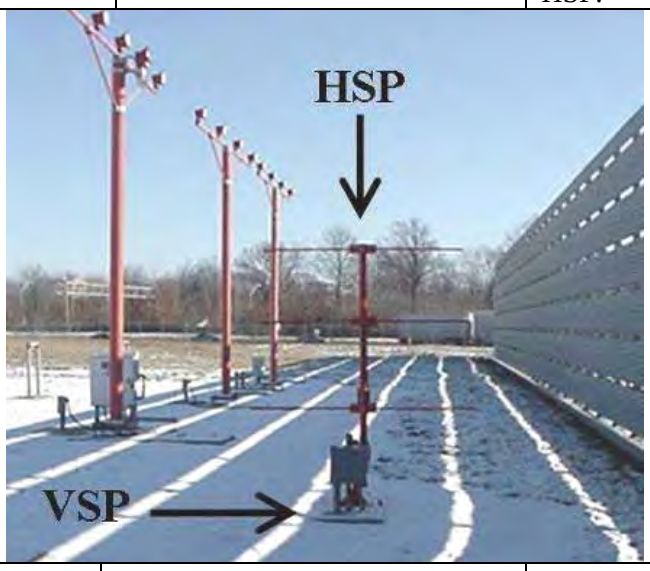
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |

| | |
|---|---|
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.11.Navaid Equipment – Inner Marker (IM)

| | | | | |
|---|---|---|---|---|
| **Definition:** Marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he/she is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- - | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |

| **Related Features** | | |
|---|---|---|
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | |
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of Antenna Array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |

| | |
|---|---|
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.12.Navaid Equipment – Localizer (LOC)**

| | | | | |
|---|---|---|---|---|
| **Definition:** The component of an ILS that provides course guidance to the runway. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | Mark and document the selected survey point for validation by NGS and inclusion in the Airports GIS database. When the ends of the runway surface have been determined, mark the positions using a nail and washer, chisel square, or paint if possible with a distinctive inscription to ensure future identification. Mark the survey point with a nail and washer inscribed with the setting company's name and year. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of Antenna Supporting Structure | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |

**Determining the HSP and Vertical Point #1 of a Localizer**

A localizer (LOC) antenna array is normally located beyond the departure end of the runway it serves (localizer 17 is on the south end of the runway) and generally consists of several pairs of directional antennas. The localizer operates as a component of the Instrument Landing System or ILS; however, it can be operated by itself. Since the localizer is made up of a set of arrays (antenna's) it provides a unique challenge in determining the center of the antenna unit. In the figure below, there are 14 antenna elements. The proper method of determining the HSP is to find the center of the supporting structure at the center of the antenna array. In this figure, this is the center of the center of structures supporting the seventh antenna element from each side.

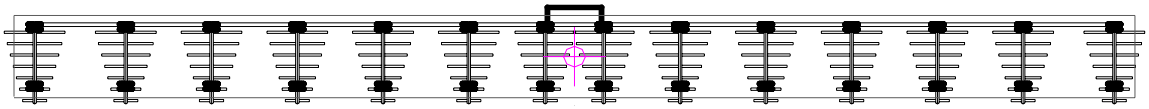


**Illustration of a localizer antenna array depicting each of the elements and the selection of the HSP and Vertical Point #1.**

In order to locate the center of the supporting structure the surveyor, is required to first locate the center of the array and then the center of the supporting structure. In order to locate the center of the supporting structure in the figure above, the surveyor would locate the center of the space between the seventh element from each end. It is recommended the surveyor use tape measures or string to form a "X" and then use a plumb bob to locate the point at the base of the antenna. Another method of the same technique is to draw lines in between the bolts supporting the elements and forming an "X" to locate the center. If the antenna array has an odd number of elements such as 15, then the center of the supporting structure would be the center of the eighth element.



| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |

| | |
|---|---|
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.13.Navaid Equipment – Localizer Type Directional Aid (LDA)**

| **Definition:** A NAVAID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway. | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |

| **Monumentation** | No monumentation required. | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | Center of Antenna Supporting Structure | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 1 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |

| | |
|---|---|
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.14.Navaid Equipment – Middle Marker (MM)

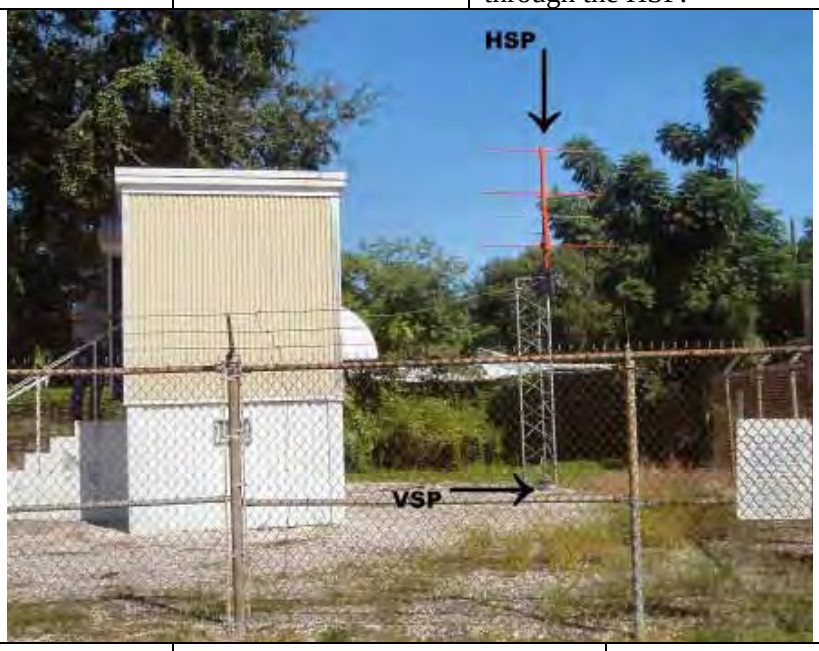
**Definition:** A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Unclassified | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | Extension |
| | **SDSFIE** | *navigational_aid_point* | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.*

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of Antenna Array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| | | | |
|---|---|---|---|
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

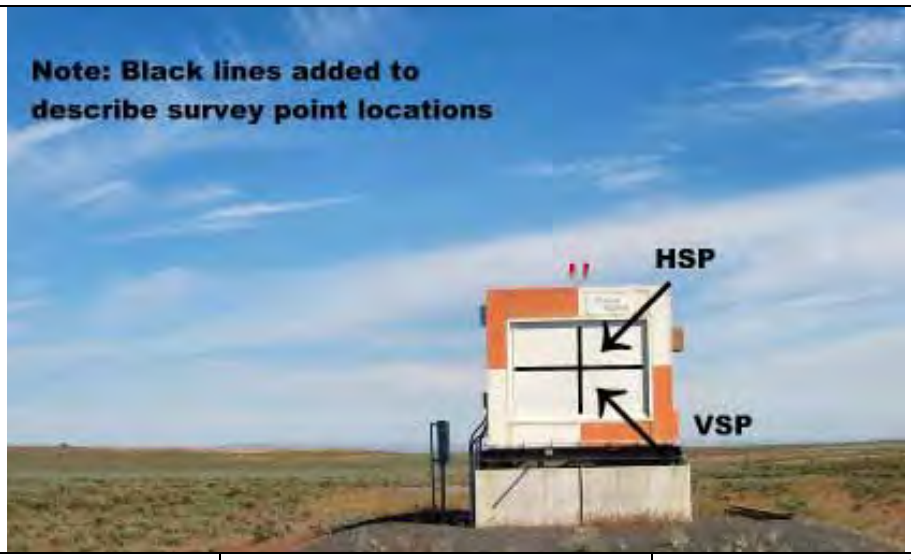
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.15.Navaid Equipment – MLS Azimuth Antenna (MLSAZ)**

| | | | | |
|---|---|---|---|---|
| **Definition:** Antenna in a Microwave Landing System (MLS) providing horizontal guidance for incoming aircraft. MLS is precision instrument approach system operating in the microwave spectrum which normally consists of an Azimuth Station, an Elevation Station and Precision Distance Measuring Equipment. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Phase Center Reference Point | | Phase Center Reference Point | |




| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 1 ft | ± 1 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.16.Navaid Equipment – MLS Elevation Antenna (MLSEZ)

| | |
|---|---|
| **Definition:** Antenna in a Microwave Landing System (MLS) providing vertical guidance for incoming aircraft. MLS is precision instrument approach system operating in the microwave spectrum which normally consists of an Azimuth Station, an Elevation Station and Precision Distance Measuring Equipment. | |
| **Feature Group** | Navigational Aids |

| **Feature Class Name** | NavaidEquipment | | | |
|---|---|---|---|---|
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Phase Center Reference Point | | Phase Center Reference Point | |


| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 0.25 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |

| | |
|---|---|
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |

| | |
|---|---|
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

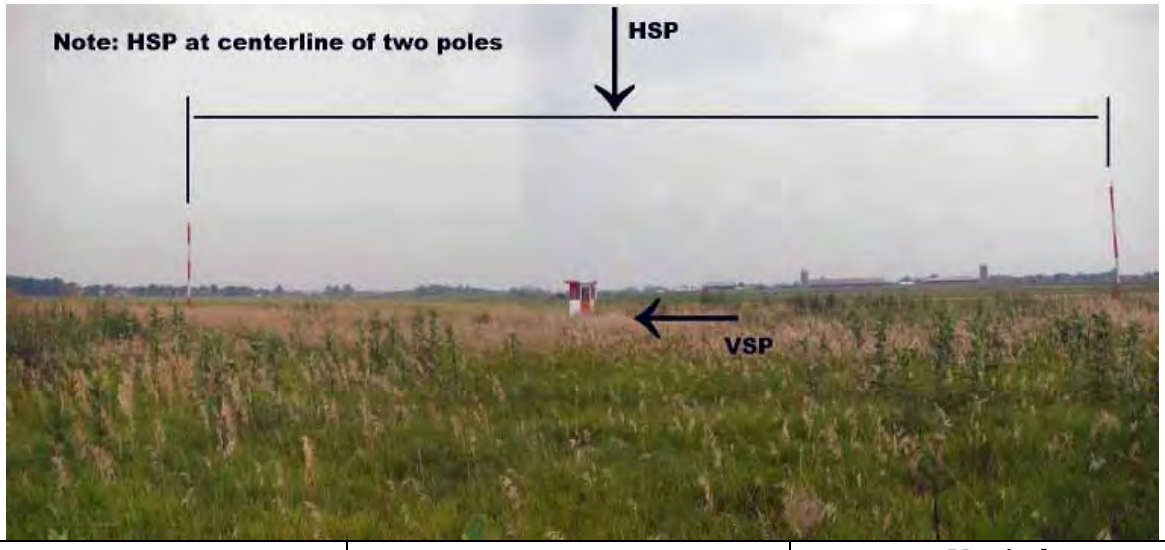
**5.10.17.Navaid Equipment – Non-Directional Beacon (NDB)**

| | | | | |
|---|---|---|---|---|
| **Definition:** An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and "home" on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |

| | Horizontal | Vertical |
|---|---|---|
| **Survey Point Location** | Center of Antenna Array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |

The following photograph displays an NDB of the single frame type:


The following photography displays a NDB of the dual frame type:




| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |

| Resolution | Geographic Coordinates | Distances and Elevations |
|---|---|---|
| | Hundredth of arc second | Nearest one foot |

**Feature Attributes**

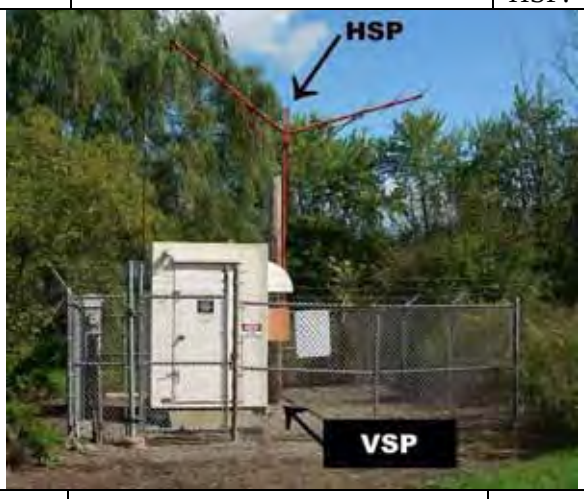
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |

| | |
|---|---|
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.18.Navaid Equipment – Outer Marker (OM)**

| | | | | |
|---|---|---|---|---|
| **Definition:** A marker beacon at or near the glideslope intercept altitude of an ILS approach. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |

| **Related Features** | | |
|---|---|---|
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | |
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of Antenna Array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

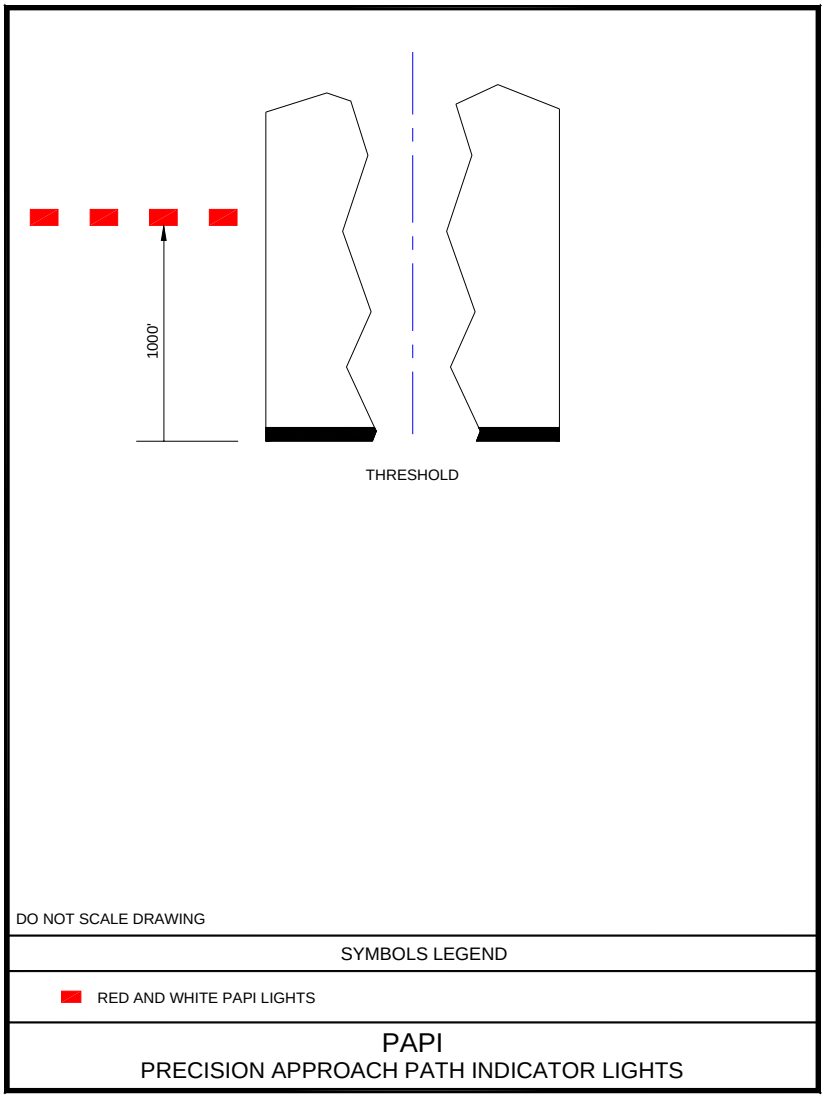
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |

| | |
|---|---|
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

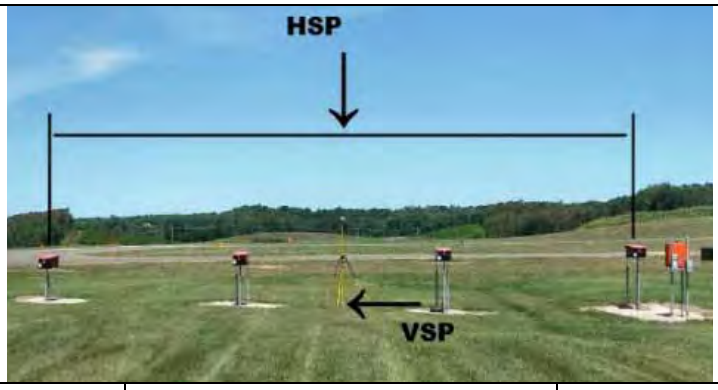
**5.10.19.Navaid Equipment – Precision Approach Path Indicator (PAPI) System**

| | | | | |
|---|---|---|---|---|
| **Definition:** An airport lighting facility, similar to VASI, providing vertical approach slope guidance to aircraft during approach to landing. PAPIs consist of a single row of either two or four lights, normally installed on the left side of the runway, and have an effective visual range of about 5 miles during the day and up to 20 miles at night. PAPIs radiate a directional pattern of high intensity red and white focused light beams which indicate that the pilot is "on path" if the pilot sees an equal number of white lights and red lights, with white to the left of the red; "above path" if the pilot sees more white than red lights; and "below path" if the pilot sees more red than white lights. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |




The PAPI is a simple visual aid to assist pilots during their approach to landing in Visual Flight Rules (VFR) conditions. It enables pilots to acquire the correct glide slope and subsequently to maintain their position on it, thus ensuring an accurate approach and landing. The PAPI system consists of four sharp transition projector units located at the side of the runway spaced laterally ±30 foot intervals. A second complementary set is sometimes provided on the opposite side of the runway. The setting angles of the red/white interfaces of the four units are graded; the differences in angle between the units being typically 20 minutes of arc. The nominal glide slope is midway between the angular settings of the center pair of units and the on-glide-slope signal and is thus two red and two white lights in the bar. If the aircraft goes below the glide slope, the pilot will see a progressively increasing number of red lights. Conversely, if the aircraft goes above the glide slope, the number of white lights seen is increased.

| | | |
|---|---|---|
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | Center of light array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. |




| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |

| | |
|---|---|
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.20.Navaid Equipment – Precision Approach Radar (PAR) Touchdown Reflectors

| | |
|---|---|
| **Definition:** Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. | |
| **Feature Group** | Navigational Aids |
| **Feature Class Name** | NavaidEquipment |
| **Feature Type** | Point |
| **CADD Standard Requirements** | |
| **Layer/Level** | **Description** |
| C-AFLD-AIDS- | Airfield Navigational Aid - |

| | Color | Line Type | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |

**Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.*

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | Center of array | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |

| | |
|---|---|
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.21.Navaid Equipment – Pulse Light Approach Slope Indicator (PLASI) System**

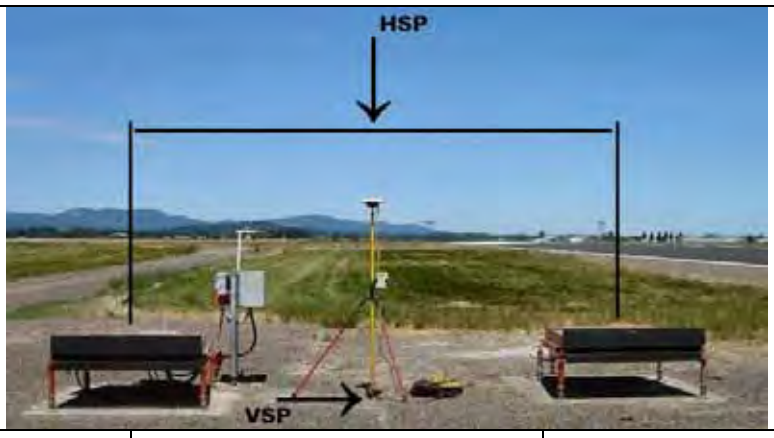
| | | | | |
|---|---|---|---|---|
| **Definition:** Pulse Light Approach Slope Indicator (PLASI) systems are a visual approach aid for use in visual flight conditions. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of light array | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest one foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | Name of the feature | | | |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. | | | |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.22.Navaid Equipment – Pulsating Visual Approach Slope Indicator (PVASI)**

| | | | | |
|---|---|---|---|---|
| **Definition:** The Visual Approach Slope Indicator (VASI) is a system of lights on the side of an airport runway that provides visual descent guidance information during the approach to a runway. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of light array | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |




| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

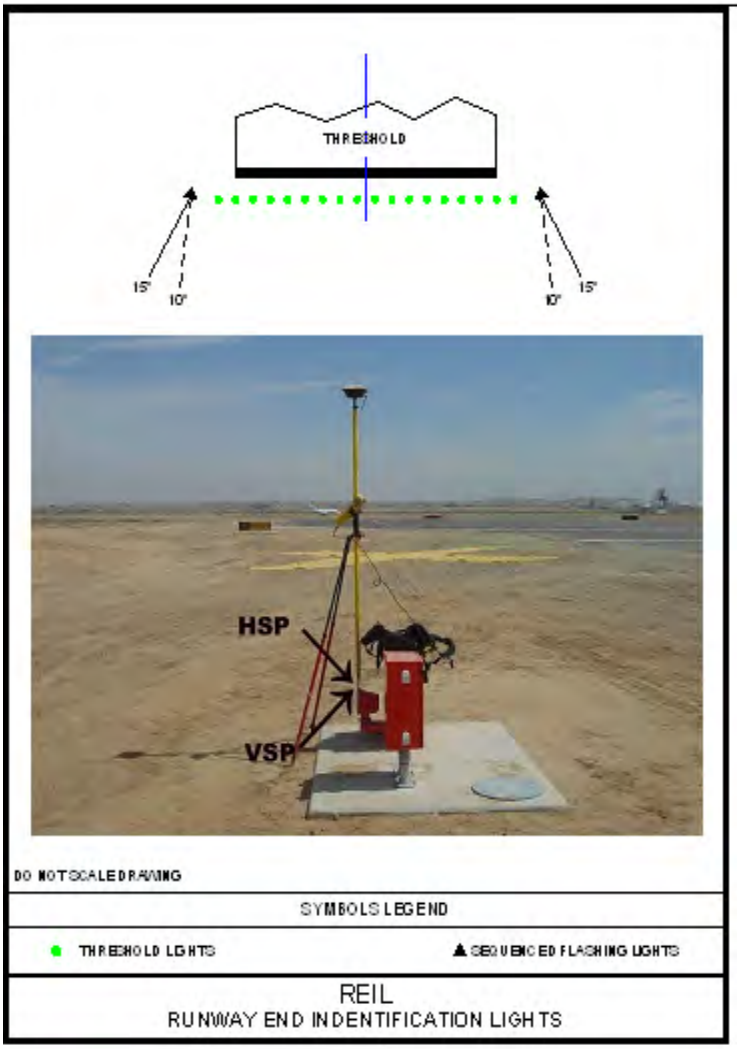
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.23.Navaid Equipment – Runway End Identifier Lights (REIL)**

| | |
|---|---|
| **Definition:** Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway. | |
| **Feature Group** | Navigational Aids |
| **Feature Class Name** | NavaidEquipment |
| **Feature Type** | Point |

<table>
<tr><th colspan="5">CADD Standard Requirements</th></tr>
<tr><th>Layer/Level</th><th colspan="4">Description</th></tr>
<tr><td>C-AFLD-AIDS-</td><td colspan="4">Airfield Navigational Aid -</td></tr>
<tr><td></td><th>Color</th><th>Line Type</th><th>Line Weight</th><th>Symbol</th></tr>
<tr><td>AutoDesk Standards</td><td>4</td><td rowspan="2">Continuous</td><td>1</td><td rowspan="2">User Defined</td></tr>
<tr><td>MicroStation Standards</td><td>7</td><td>7</td></tr>
<tr><td>Information Assurance Level</td><td colspan="4">Unclassified</td></tr>
<tr><td rowspan="3">Equivalent Standards</td><td>AIXM</td><td colspan="2">NavaidEquipment</td><td>Extension</td></tr>
<tr><td>FGDC</td><td colspan="2">NavaidEquipmentExtension</td><td>Extension</td></tr>
<tr><td>SDSFIE</td><td colspan="3">navigational_aid_point</td></tr>
<tr><td>Documentation and Submission Requirements</td><td colspan="4">Document this feature as described in paragraphs 1.5.2 and 1.5.3.</td></tr>
<tr><td>Related Features</td><td colspan="4"></td></tr>
<tr><td colspan="5">Data Capture Rules: Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.</td></tr>
</table>




The REIL is an airport lighting system consisting of two flashing, white, high intensity lights located at each approach end corner of a runway. The REILs are directed towards the approach zone to enable pilots to identify the end of the runway.

| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | Center of Light | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | Horizontal | Vertical | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 3 ft | ± 5 ft | N/A |
| **Resolution** | Geographic Coordinates | Distances and Elevations | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.24.Navaid Equipment – Simplified Directional Facility (SDF)**

<table>
<tr><td colspan="5">Definition: NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.</td></tr>
<tr><td>Feature Group</td><td colspan="4">Navigational Aids</td></tr>
<tr><td>Feature Class Name</td><td colspan="4">NavaidEquipment</td></tr>
<tr><td>Feature Type</td><td colspan="4">Point</td></tr>
<tr><td colspan="5">CADD Standard Requirements</td></tr>
<tr><td>Layer/Level</td><td colspan="4">Description</td></tr>
<tr><td>C-AFLD-AIDS-</td><td colspan="4">Airfield Navigational Aid -</td></tr>
<tr><td></td><td>Color</td><td>Line Type</td><td>Line Weight</td><td>Symbol</td></tr>
<tr><td>AutoDesk Standards</td><td>4</td><td rowspan="2">Continuous</td><td>1</td><td rowspan="2">User Defined</td></tr>
<tr><td>MicroStation Standards</td><td>7</td><td>7</td></tr>
<tr><td>Information Assurance Level</td><td colspan="4">Unclassified</td></tr>
<tr><td rowspan="3">Equivalent Standards</td><td>AIXM</td><td colspan="2">NavaidEquipment</td><td>Extension</td></tr>
<tr><td>FGDC</td><td colspan="2">NavaidEquipmentExtension</td><td>Extension</td></tr>
<tr><td>SDSFIE</td><td colspan="3">navigational_aid_point</td></tr>
<tr><td>Documentation and Submission Requirements</td><td colspan="4">Document this feature as described in paragraphs 1.5.2 and 1.5.3.</td></tr>
<tr><td>Related Features</td><td colspan="4"></td></tr>
<tr><td colspan="5">Data Capture Rules: Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.</td></tr>
<tr><td>Monumentation</td><td colspan="4">No monumentation required.</td></tr>
</table>

| | | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | Center of Antenna Supporting Structure | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 1 ft | ± 1 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

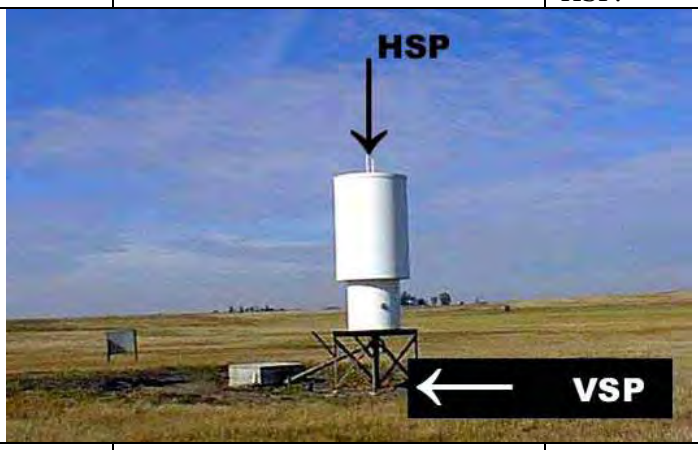
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |

| | |
|---|---|
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.25.Navaid Equipment – Tactical Air Navigation (TACAN)

| **Definition:** An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station. | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |

| | | | |
|---|---|---|---|
| | **FGDC** | *NavaidEquipmentExtension* | Extension |
| | **SDSFIE** | *navigational_aid_point* | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | |
| **Related Features** | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | |
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | Center of Antenna Cover | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |




| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

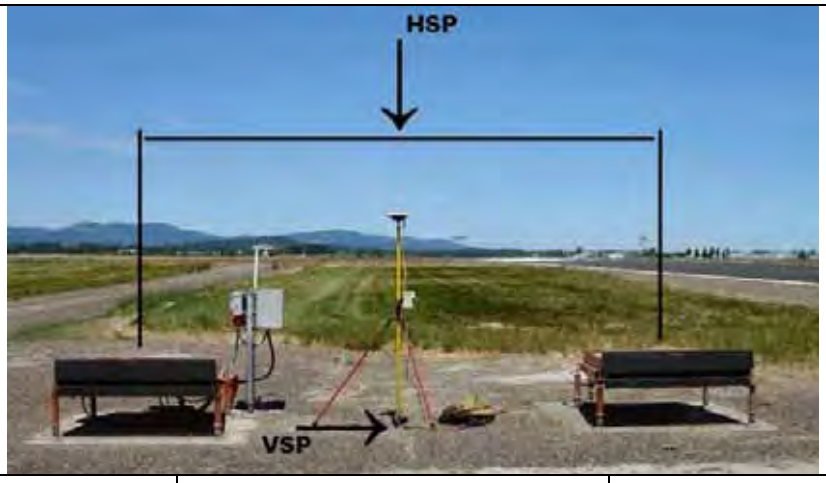
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.26.Navaid Equipment – Tricolor Visual Approach Slope Indicator System (TRCV)**

| | | | | |
|---|---|---|---|---|
| **Definition:** Tri-color visual approach slope indicators normally consist of a single light unit projecting a three-color visual approach path into the final approach area of the runway upon which the indicator is installed. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of light array | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |




| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.10.27.Navaid Equipment – “T” Visual Approach Slope Indicator System (T-VASI)

| | |
|---|---|
| **Definition:** T-VASI system provides approach slope guidance by means of illuminated symbols like the PAPI. | |
| **Feature Group** | Navigational Aids |
| **Feature Class Name** | NavaidEquipment |
| **Feature Type** | Point |

| **CADD Standard Requirements** | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of light array | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 10 ft | ± 10 ft |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Hundredth of arc second | | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |

| | |
|---|---|
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.28.Navaid Equipment – VHF Omni Directional Range (VOR)**

| | | | | |
|---|---|---|---|---|
| **Definition:** A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the NAS. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavigationalAidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of Antenna Cover | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |


**Standalone VOR**


**VOR coupled with DME**

| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

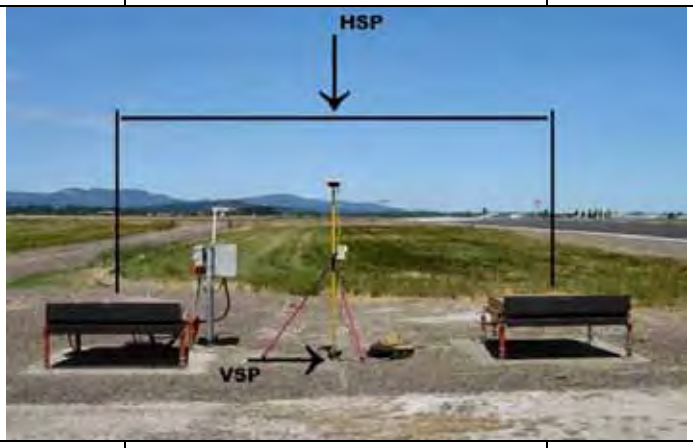
| **Attribute (Datatype)** | **Description** |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use “Z” plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.29.Navaid Equipment – Visual Approach Slope Indicator System (VASI)**

| |
|---|
| **Definition:** An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is "on path" if he/she sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASIs which provide two visual glide paths to the same runway. |

| | | | | |
|---|---|---|---|---|
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of Light Array | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |




| | | | |
|---|---|---|---|
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 10 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |

| | |
|---|---|
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to "visual") |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |

| | |
|---|---|
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.30.Navaid Equipment – VOR/TACAN (VORTAC)**

| | | | | |
|---|---|---|---|---|
| **Definition:** A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. | | | | |
| **Feature Group** | Navigational Aids | | | |
| **Feature Class Name** | NavaidEquipment | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AFLD-AIDS- | Airfield Navigational Aid - | | | |
| | **Color** | **Line Type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavaidEquipment* | | Extension |
| | **FGDC** | *NavaidEquipmentExtension* | | Extension |
| | **SDSFIE** | *navigational_aid_point* | | |
| **Documentation and Submission Requirements** | Document this feature as described in paragraphs 1.5.2 and 1.5.3. | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the position of the NAVAID using the HSP and the elevation at the VSP. If the NAVAID penetrates an OIS or is selected as a representative object, additionally identify, classify and document the NAVAID as an Obstacle and associated accuracy. When identifying a NAVAID as an obstacle, survey the highest point on the entire structure as the top elevation including appurtenances.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | Center of Antenna Cover | | The intersection of the ground, gravel, concrete pad, or other base and plumb line through the HSP. | |


| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
|---|---|---|---|
| | | **Orthometric** | **Ellipsoidal** |
| | ± 10 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Hundredth of arc second | Nearest one foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. |
| faaFacilityId (String 4) | Enter the identifier. When reporting on a glide slope, enter the identifier of the associated localizer. Do not enter the prefix "I" for ILS or "M" used with the MLS systems. Where more than one ASR is in operation at the same location or at an associated location, these equipments will be identified with the letters A, B, C, etc., following the identification (e.g., NQIB). The same applies to PAR identifiers. These alpha codes must be the same as those used to accomplish the daily flight log. For ARSR facilities, use "Z" plus the identifier of the controlling ARTCC or military installation. Light systems will use the airport identifier and runway number. [Source:FAA Order 8250-42] |
| navaidEquipmentType (Enumeration: CodeNavaidequipmentType) | Specifies the type of NAVAID |
| navigationalAidSystemType (Enumeration: CodeNavaidSystemType) | Identifes the navigational aid equipment as part of an overall system. For example the localizer and glideslope together make up the Instrument landing system (ILS) or the MLS Azimuth and MLS Elevation make up a Microwave Landing System |
| useCode (Enumeration: CodeUseCode) | The code that represents the airspace structure in which the aeronautical navigational aid is utilized. |
| antennaToThresholdDistance (Real) | The distance in feet that the antenna is from the runway threshold. Provide the distance to the nearest tenth of a foot. |

| | |
|---|---|
| centerlineDistance (Real) | Distance from the centerline perpendicular point to the physical runway end. This should be the same distance as the antenna to threshold distance unless the runway end the navigational aid serves has a displaced threshold. Provide this distance to the nearest tenth of a foot. |
| stopEndDistance (Real) | Provide the distance distance the from the antenna along the centerline to the stop end of the runway. |
| offsetDistance (Real) | The distance in feet that the feature is offset from the runway centerline. Provide this distance to the nearest tenth of a foot. |
| offsetDirection (Enumeration: CodeOffsetDirection) | Enter the direction (right, left, or on centerline) the navigational aid is offset from the runway. Determine the appropriate direction from the approach threshold down the runway. |
| lightingType (Enumeration: CodeLightingConfigurationType) | The type of Visual navigational aid system (use only when CodeNavaidEquipmentType is set to “visual”) |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (String 75) | The owner of the facility |
| runwayEndId (String 3) | Identify the primary instrument runway served by the facility. When more than one runway is served by a precision approach aid (such as a PAR), provide a separate feature for each runway. This attribute is only required for ILS, MLS, TLS, and PAR. |
| referencePointEllipsoidHeight | Provide the height above the ellipsoid (HAE) for the referencePoint. |
| referencePointThreshold (Real) | Distance from the runway reference point to the threshold. Provide this distance to the nearest tenth of a foot. [Source: FAA AAS-100] |
| thresholdCrossingHeight (Real) | The designated crossing height of the flight path angle above the Landing Threshold Point (or Fictitious Threshold Point). |
| highAngle (Real) | Maximum approach light vertical angle [Source: FAA AAS-100] |
| userFlag (String 254) | An 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. |
| ellipsoidElevation (Real) | The Base Elevation for most NAVAIDs. For ILS DME, the elevation is the center of the antenna cover. For MLSAZ, MLSEL, and End Fire Type Glide Slope Antennas, the elevation is the phase center of the reference point. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.10.31.NAVAID Site**

| **Definition:** The parcel, lease, or right-of-way boundary for a NAVAID or facility that is located off airport property. | |
|---|---|
| **Feature Group** | Navigational Aids |
| **Feature Class Name** | NAVAIDSite |
| **Feature Type** | Polygon |

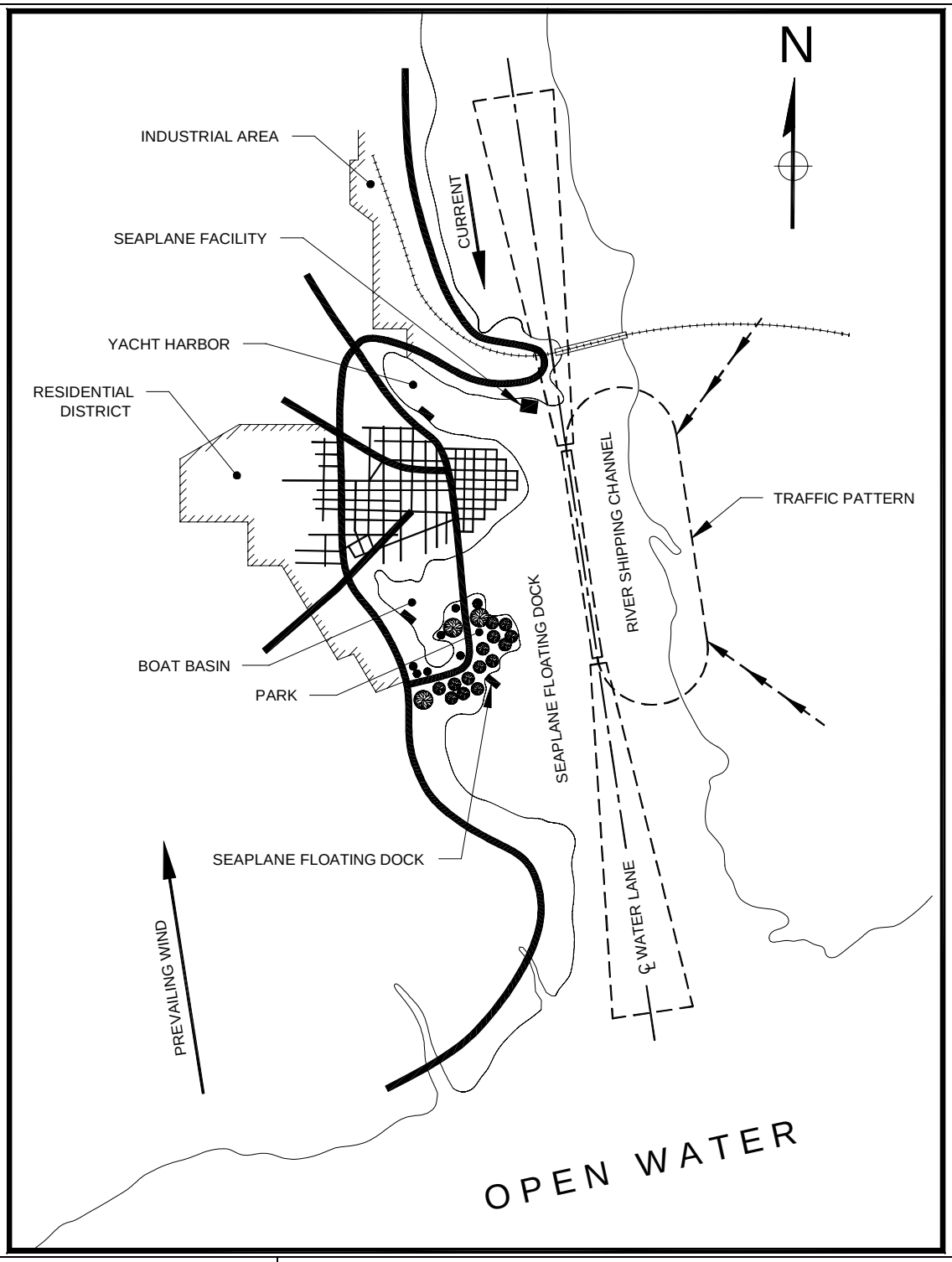
| **CADD Standard Requirements** | | | | | |
|---|---|---|---|---|---|
| **Layer/Level** | **Description** | | | | |
| C-AIRF-AIDS-SITE | Airfield Navigational Aid - Site | | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** | |
| **AutoDesk Standards** | 1 | Continuous | 1 | User Defined | |
| **MicroStation Standards** | 3 | | 7 | | |
| **Information Assurance Level** | Unclassified | | | | |
| **Equivalent Standards** | **AIXM** | *NavaidSite* | | Extension | |
| | **FGDC** | *NavigationalAidSite* | | Extension | |
| | **SDSFIE** | *Airfield_facility_surface_site* | | | |
| **Documentation and Submission Requirements** | No documentation required. | | | | |
| **Related Features** | | | | | |
| **Data Capture Rules:** *Collect a closed polygon to its greatest horizontal extent.* | | | | | |
| **Monumentation** | No monumentation required. | | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | | |
| | N/A | | N/A | | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | | |
| | | | **Orthometric** | **Ellipsoidal** | |
| | ± 5 ft | | ± 10 ft | N/A | |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | | |
| | Hundredth of arc second | | Nearest one foot | | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature |
| description (VARCHAR2 (255)) | A brief description of the facility and any special characteristics. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| faaFacilityId (String 4) | The location identifier assigned to the feature by FAA |
| facilityType (String 16) | The type of facility or feature related to airfield operations. |
| propertyCustodian (String 50) | The regional property management office responsible for ownership of the site |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.11. Group: SEAPLANE

### 5.11.1. Water Operating Area

| | | | | |
|---|---|---|---|---|
| **Definition:** An area designated and marked for the takeoff and landing of aircraft. This is equivalent to the Airport Operating Area of a land based airport. | | | | |
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | WaterOperatingArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-WTOA- | Seaplane dock | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *None* | | |
| | **FGDC** | *None* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the WaterOperatingArea using a bounding polygon to capture the area at its greatest extents.* | | | | |




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 20 ft | N/A |

| Resolution | Geographic Coordinates | Distances and Elevations |
|---|---|---|
| | Five hundredth of arc second | Nearest foot |

| Feature Attributes | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature water body (river/lake). |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial | Code used to indicate the type of water the water operating area is on or planned to use. |
| length (Integer) | Specify the overall length of the WaterOperatingArea to the nearest 5 feet |
| width (Integer) | Specify the overall width of the waterOperatingArea to the nearest 5 feet |
| currentFlowRate (Integer) | Measure and specify the rate of the current flow in the WaterOperatingArea in miles per hour |
| compassLocation (Enumeration: CodeCompassLocation) | Specify the magnetic bearing of the current flow direction |
| tidalRange (Integer) | Specify (in feet) the height difference in height from mean low mean high tide |
| coordinatedUseType (Enumeration: CodeCoordinatedUseType) | Specify the primary coordinated use of the waterway. If no single activity comprises the majority of the coordinated use then specify multiple. |
| coordinatedUseActivityLevel (Integer) | Provide the amount of activity based on percentage of daily use of the primary coordinated use type. If coordinated use type is multiple provide the largest activity level of the single most expected activity. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

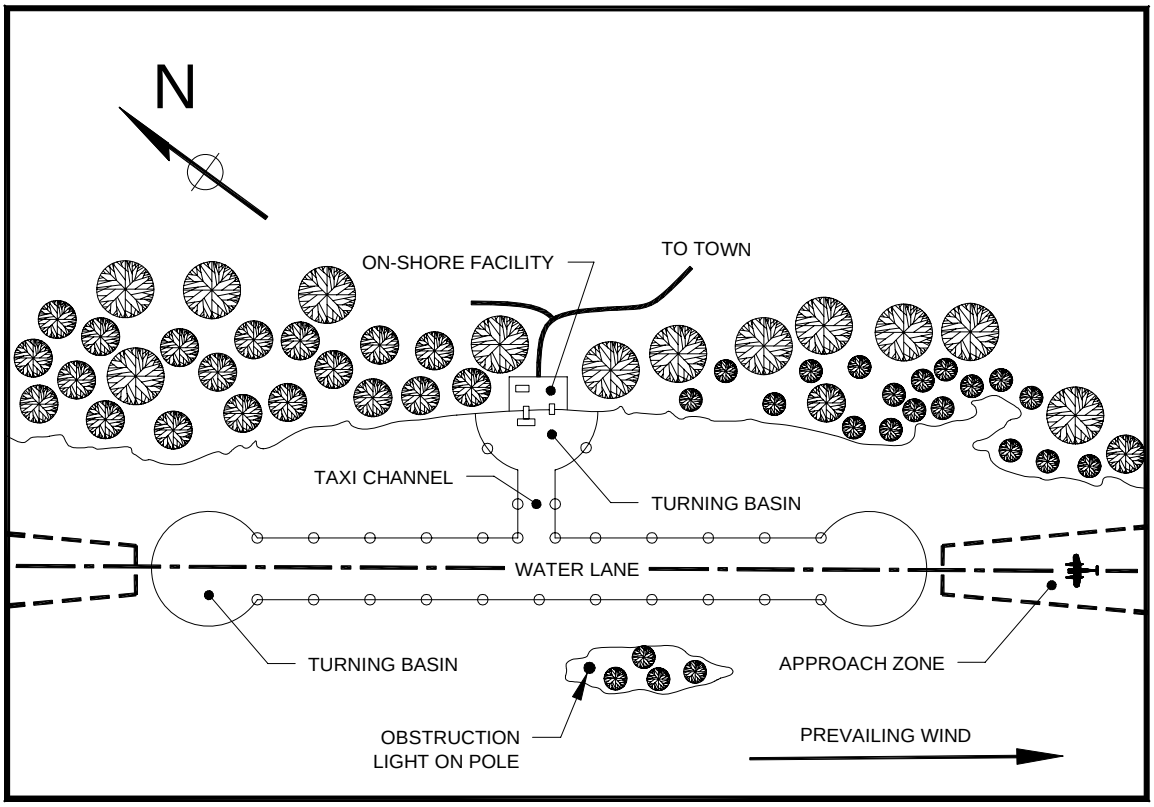
### 5.11.2. Water Lane End

**Definition:** The end of the water lane (typically located at the furthest end of a turning basin) suitable for landing or takeoff runs of aircraft. WaterLaneEnds define the water lane and describe the approach/departure procedure characteristics of a water lane.

| | | | | |
|---|---|---|---|---|
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | WaterLaneEnd | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-LNDA- | Seaplane landing area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |

| | | | |
|---|---|---|---|
| **Equivalent Standards** | **AIXM** | *None* | |
| | **FGDC** | *None* | |
| | **SDSFIE** | *None* | |
| **Documentation and Submission Requirements** | None | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect a point on the turning basin boundary identifying the point where aeronautical activity is expected to occur. Typically, markers or buoys define the area, locate the WaterLaneEnd at least 10 feet inside the markers or buoys.*




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| magneticBearing | Compute and specify the magnetic bearing of the primary water lane to the nearest degree based on the location of the reciprocal WaterLaneEnd points. This is similar to the runway magnetic bearing for a land based airport. |

| | |
|---|---|
| compassLocation (Enumeration: CodeCompassLocation) | Code indicating the cardinal compass location of the turning basin from centroid of the WaterLaneEnd. This feature is similar to the land based airport RunwayEnd. |
| restriction (String 240) | Any restrictions or cautions associated with the sea plane landing area. |
| airMarker (Boolean) | Code specifying if a standard air maker is used to indicate if a standard air marker is in use at the location. |
| type (Boolean) | Identifies the WaterLaneEnd as the primary or alternate. Primary = Y, alternate=N |
| color (Enumeration: CodeColor) | The color of the air marker at the location (if any) |
| lightingType (Enumeration: CodeLightingConfigurationType) | Type of lighting available at the location (if any) |
| approachGuidance (Enumeration: CodeApproachGuidance) | Identifies the type of approach guidance in use or planned for the water operating area. |
| Length (Number 10) | Specify the overall length of the primary water lane |
| width (Number 10) | Specify the overall width of the primary water lane |
| depth (Number 10) | Specify the depth of the primary water lane with respect to mean lowest low tide |
| centroid | The geographic location of the primary water centroid, used to determine the primary and alternate water lanes within the water operating area. |
| status (Enumeration: codeStatus) | Describes the operational status of the feature. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.3. Taxi Channel

| | | | | |
|---|---|---|---|---|
| **Definition:** A water channel used for the movement of aircraft between on shore facilities and the water lane. [Source AC 150/5395-1] | | | | |
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | TaxiChannel | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-TAXI- | Seaplane landing area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *None* | | |
| | **FGDC** | *None* | | |
| | **SDSFIE** | *None* | | |

| | | | | |
|---|---|---|---|---|
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the taxi channel at its greatest horizontal extents. Existing markers or buoys may define the width. In the instance the taxi channel is not marked for width, refer to width published by FAA in the U.S. Terminal Procedures.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

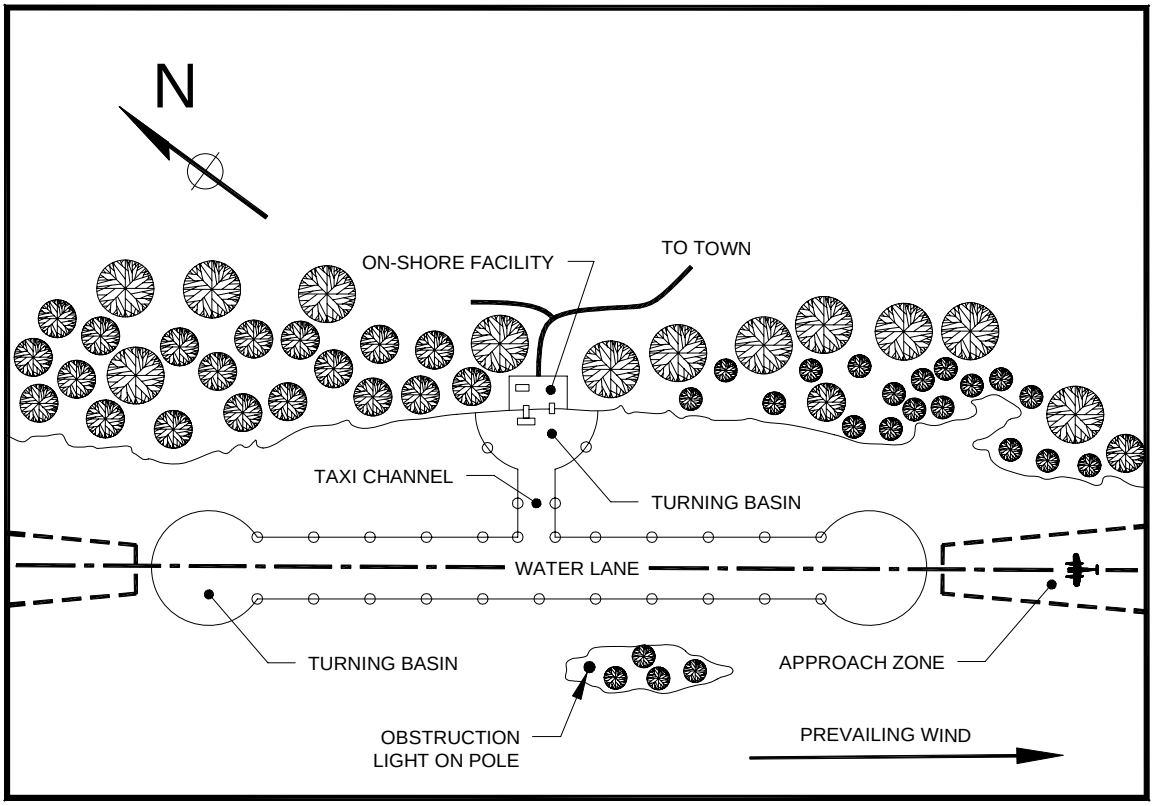
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Any commonly used name associated with the taxi channel. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| restriction (String 240) | Any restrictions or cautions associated with the taxi channel |
| length (Number 10) | Specify the overall length of the taxi channel |
| width (Number 10) | Specify the overall width of the taxi channel |
| depth (Number 10) | Specify the depth of the taxi channel with respect to mean lowest low tide |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.4. Turning Basin

| | | | | |
|---|---|---|---|---|
| **Definition:** A water area used for the maneuvering of aircraft where the use of water surface is restricted. Turning basins should be located adjacent to shoreline facilities and at each end of the water operating area.[Source AC 150/5395-1] | | | | |
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | TurningBasin | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-TBSN- | Seaplane landing area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |

| | | | |
|---|---|---|---|
| **Equivalent Standards** | **AIXM** | *None* | |
| | **FGDC** | *None* | |
| | **SDSFIE** | *None* | |
| **Documentation and Submission Requirements** | None | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect the turning basin at its greatest horizontal extents. Existing markers or buoys may define the boundary; if so collect the boundary inside the buoys.*




| | | | |
|---|---|---|---|
| **Monumentation** | No monumentation required. | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | A commonly used name for the turning basin |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| restriction (String 240) | Any restrictions or cautions associated with the turning basin |
| length (Number 10) | Specify the overall length of the turning basin to the nearest 5 feet. |
| width (Number 10) | Specify the overall width of the turning basin to the nearest 5 feet |

| | |
|---|---|
| depth (Number 10) | Specify the depth of the turning basin with respect to mean lowest low tide to the nearest 0.5 foot. |
| diameter (Number 10) | The diameter of the turning basin available for use by aircraft to the nearest 5 feet. |
| compassLocation (Enumeration: CodeCompassLocation) | Code indicating the cardinal compass location of the turning basin from centroid of the WaterLaneEnd |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.5. Navigation Buoy

| **Definition:** A 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. | | | | |
|---|---|---|---|---|
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | NavigationBuoy | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-BUOY- | Seaplane navigation buoy | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *NavigationBuoy* | | Core |
| | **FGDC** | *NavigationBuoy* | | |
| | **SDSFIE** | *marine_navigation_buoy_point* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect at the center and highest point on the buoy regardless of water level at time of data collection.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |
| **Feature Attributes** | | | | |
| **Attribute (Datatype)** | **Description** | | | |
| name (VARCHAR2 (50)) | Any commonly used name associated with the buoy. | | | |

| | |
|---|---|
| description (VARCHAR2 (255)) | A description or other unique information concerning the buoy limited to 255 characters. Use this to describe navigational requirements or warnings. |
| designator (String 20) | The official number of the buoy. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| type (Enumeration: CodeBuoyType) | Discriminator - The type of the buoy or marker. |
| lightingType (Enumeration: CodeLightingConfigurationType) | Type of lighting available at the location (if any) |
| color (Enumeration:CodeColor) | Code used to indicate the navigational color of the buoy. |
| owner (Enumeration: CodeOwner) | Code indicating the owner of the navigation buoy. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.6. Seaplane Ramp Centerline

| **Definition:** The centerline of ramps specifically designed to transit seaplanes to or from land or water | | | | |
|---|---|---|---|---|
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | SeaplaneRampCenterline | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-RAMP-CNTR | Seaplane ramp centerline | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *SeaplaneRampSite* | | Core |
| | **FGDC** | *SeaplaneRampCenterline* | | |
| | **SDSFIE** | *sea_plane_ramp_centerline* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect centerline of ramp from edge of pavements or other surface type utilized for entering and exiting water. Line extends from edge of water to apron or taxiway.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |

| Resolution | Geographic Coordinates | Distances and Elevations |
|---|---|---|
| | Five hundredth of arc second | Nearest foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| length (Integer) | Specify the length of the seaplane ramp centerline from the water to the shoreline |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.7. Seaplane Ramp Site

| **Definition:** Ramps specifically designed to transit seaplanes to or from land to water. | | | | |
|---|---|---|---|---|
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | SeaplaneRampSite | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-RAMP- | Seaplane ramp site | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *SeaplaneRampSite* | Core | |
| | **FGDC** | *SeaplaneRampSite* | | |
| | **SDSFIE** | *sea_plane_ramp_site* | | |
| **Documentation and Submission Requirements** | No documentation is required for this feature. | | | |
| **Related Features** | | | | |
| **Data Capture Rules***: Collect the ramp width at its greatest horizontal limits.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

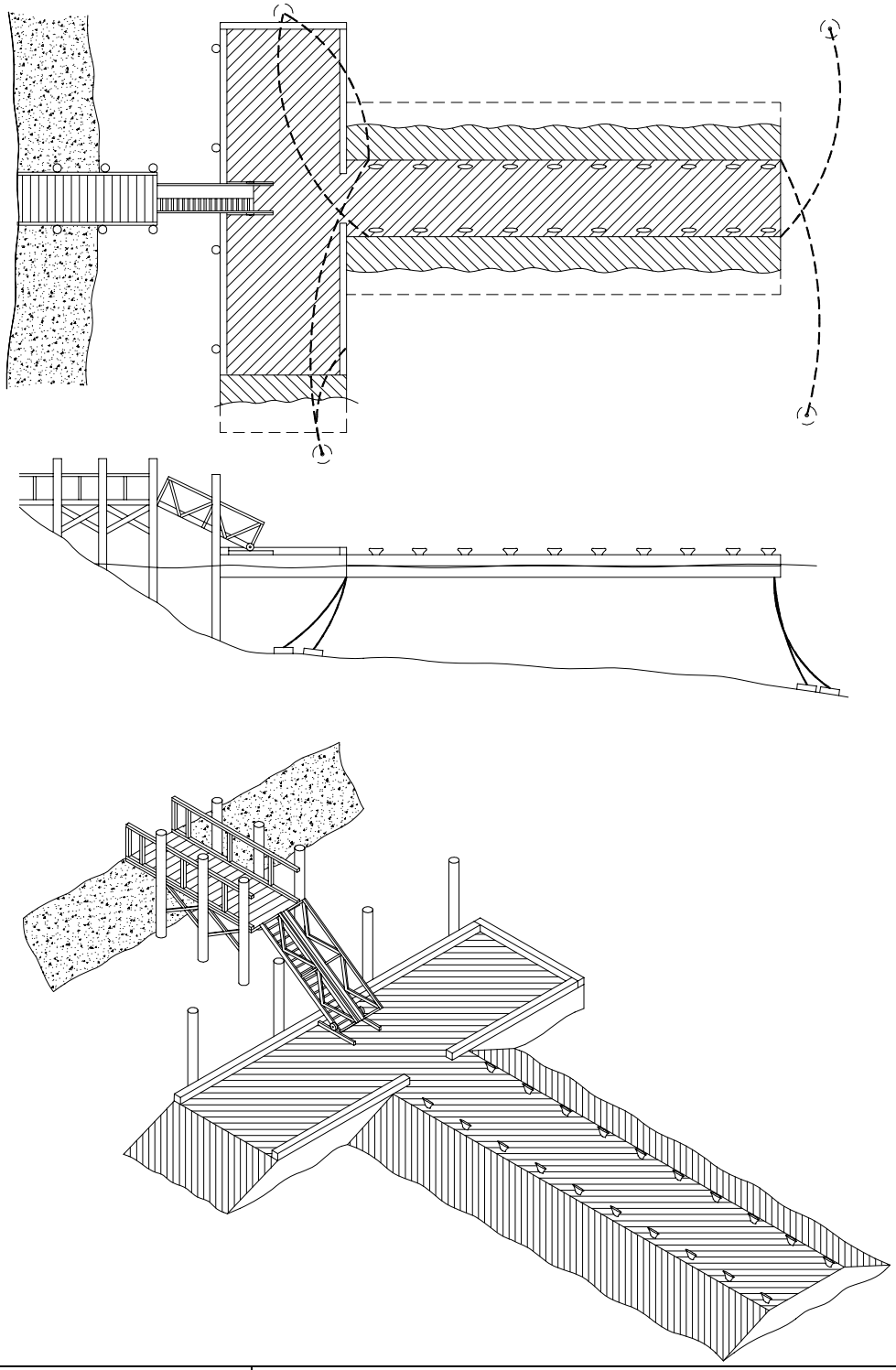
**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |

| | |
|---|---|
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| width (Integer) | Identify the width of the seaplane ramp site |
| slope (integer) | The slope of the ramp specified as an integer value. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.8. Docking Area

| **Definition:** A defined area on a seaplane base either fixed or floating, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. | | | | |
|---|---|---|---|---|
| **Feature Group** | SeaPlane | | | |
| **Feature Class Name** | DockArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-DOCK- | Seaplane dock | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *FloatingDockSite* | | Core |
| | **FGDC** | *FloatingDockSite* | | |
| | **SDSFIE** | *floating_dock_site* | | |
| **Documentation and Submission Requirements** | None | | | |

| **Related Features** | | |
|---|---|---|
| **Data Capture Rules:** *Collect the dockArea at its greatest horizontal extents.* | | |
|  | | |
| **Monumentation** | No monumentation required. | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| Accuracy Requirements (in feet) | Horizontal | Vertical | |
|---|---|---|---|
| | | Orthometric | Ellipsoidal |
| | ± 5 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of arc second | Nearest foot | |

**Feature Attributes**

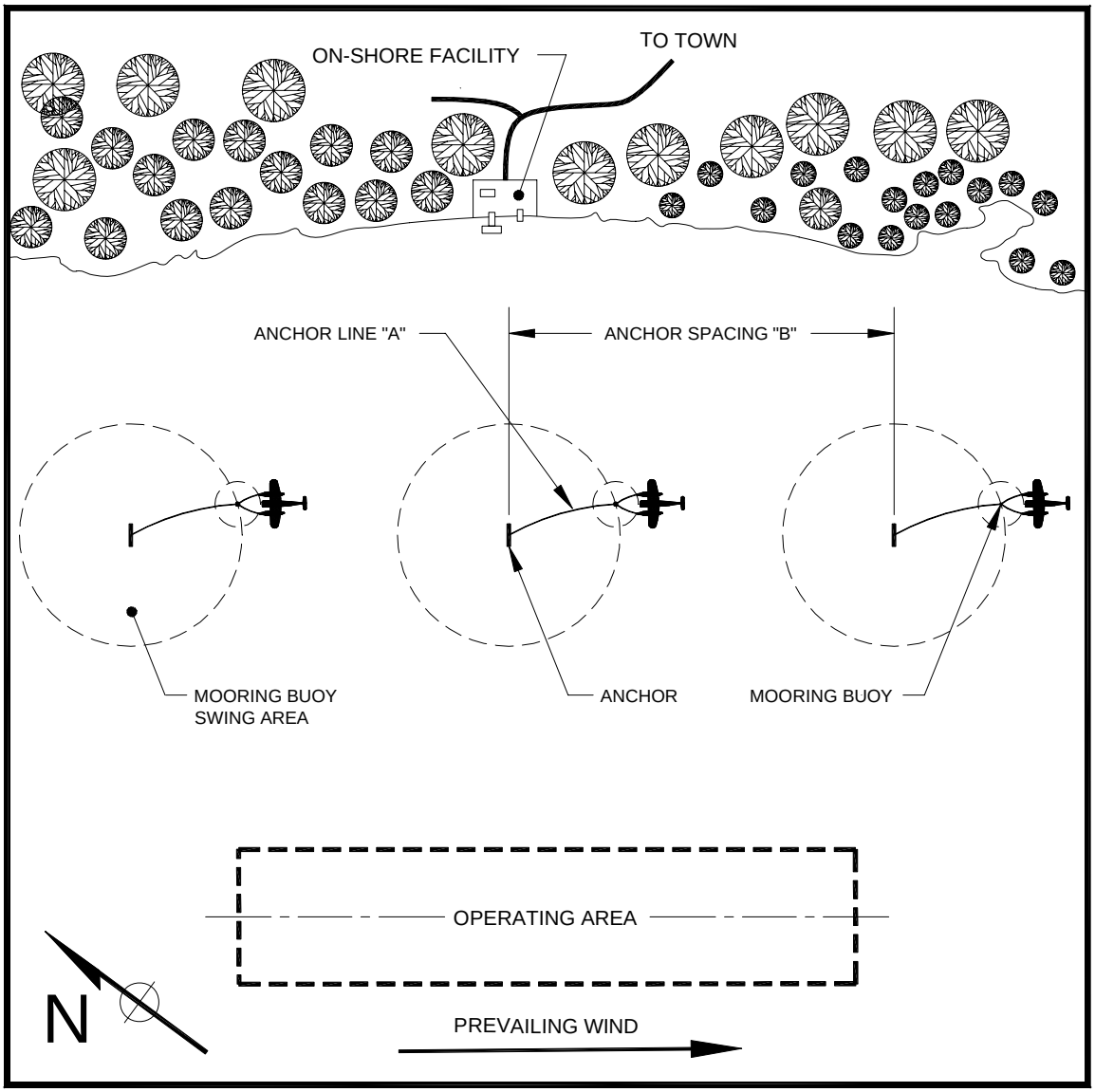
| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR (50)) | Name of the feature. |
| description (VARCHAR (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| pier (Boolean) | Specify if a pier is available in the dockArea |
| pierLength (Integer) | Specify the overall length available for the pier |
| pierWidth (Integer) | Specify the overall length available for the pier |
| pierMaterial (Enumeration: CodeVerticalStructureMaterial)) | Specify the materials used in the construction of the pier. |
| hoistingCapability (Integer) | Specify the hoisting capability in pounds |
| marineRailwayPlatformLength (Integer) | Specify the length of the marine railway platform |
| marineRailwayPlatformWidth (Integer) | Specify the width of the marine railway platform |
| marineRailwayPlatformCapacity (Integer) | Specify the capacity of the marine railway platform in pounds |
| gangway (Boolean) | Specify if a gangway is available |
| gangwayLength (Integer) | Specify the overall length available for the gangway |
| gangwayWidth (Integer) | Specify the overall length available for the gangway |
| floatingDock (Boolean) | Specify if a floating dock is available |
| gangwayMaterial (Enumeration: CodeVerticalStructureMaterial) | Specify the material used to construct the gangway |
| floatingDockLength (Integer) | Specify the overall length available for the floating dock |
| floatingDockWidth (Integer) | Specify the overall length available for the floating dock |
| floatingDockMaterial (Enumeration: CodeVerticalStructureMaterial) | Specify the material used in constructing the dockArea |
| floatingBarge (Boolean) | Specify if a floating barge is available |
| floatingBargeLength (Integer) | Specify the overall length available for the floating barge |
| floatingBargeWidth (Integer) | Specify the overall length available for the floating barge |
| floatingBargeMaterial Enumeration: CodeVerticalStructureMaterial) | Specify the material used in constructing the floatingBarge |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.11.9. Anchorage Area

| **Definition:** An area designated specifically for the parking of seaplanes. | |
|---|---|
| **Feature Group** | SeaPlane |

| **Feature Class Name** | AnchorageArea | | | |
|---|---|---|---|---|
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SEAP-ANCH- | Seaplane dock | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 3 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 2 | | 7 | |
| **Information Assurance Level** | Unclassified | | | |
| **Equivalent Standards** | **AIXM** | *None* | | |
| | **FGDC** | *None* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |

| **Related Features** | |
|---|---|
| **Data Capture Rules:** *Collect the anchorage area at its greatest horizontal extents.* | |




| **Monumentation** | No monumentation required. | | |
|---|---|---|---|
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 20 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of arc second | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |

| | |
|---|---|
| userFlag (String 254) | An 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. |
| mooringLocations (Integer) | Specify the number of mooring locations provided in the AnchorageArea. |
| length (Integer) | Specify the overall length available for the AnchorageArea |
| width (Integer) | Specify the overall length available for the floating dock |
| depth (Integer) | Specify the depth of the turning basin with respect to mean lowest low tide to the nearest 0.5 foot. |
| bottomConditions (String 240) | Specify the type of bottom conditions in the AnchorageArea. |
| restriction (String 240) | Any restrictions or cautions associated with the AnchorageArea |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.12. Group: SECURITY

### 5.12.1. Security Area

| | | | | |
|---|---|---|---|---|
| **Definition:** An area of the airport in which security measures required by 49 CFR 1542.201 must be carried out [Source: 49 CFR 1542] | | | | |
| **Feature Group** | Security | | | |
| **Feature Class Name** | SecurityArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C- SECR-SECA | An area of the airport in which security measures required by 49 CFR 1542.201 | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Secret | | | |
| **Equivalent Standards** | **AIXM** | *SecurityElement* | | Extension |
| | **FGDC** | *SecurityArea* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of security area at its greatest horizontal extents. Extents can be defined by fences, paint lines, or specific limits defined by airport authorities.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredths of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.12.2. Security Identification Display Area

| | | | | |
|---|---|---|---|---|
| **Definition:** Portions of an airport, specified in the airport security program, in which security measures required by regulation must be, carried out. This area includes the security area and may include other areas of the airport. [Source: DHS] | | | | |
| **Feature Group** | Security | | | |
| **Feature Class Name** | SecurityIdDisplayArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-AIRF-SECR-SIDA | Security Identification Display Area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Secret | | | |
| **Equivalent Standards** | **AIXM** | *SecurityElement* | | Extension |
| | **FGDC** | *SecurityIdentificationDisplayArea* | | Extension |
| | **SDSFIE** | *none* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of security area at its greatest horizontal extents. Extents can be defined by fences, paint lines, or specific limits defined by airport authorities.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.12.3. Security Perimeter Line

| | |
|---|---|
| **Definition:** Any type of perimeter, such as barbed wire, high fences, motion detectors and armed guards at gates, that ensure no unauthorized visitors can gain entry. | |
| **Feature Group** | Security |
| **Feature Class Name** | SecurityPerimeterLine |

| **Feature Type** | Polygon | | | |
|---|---|---|---|---|
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-DETL-FENC-SECU | Security Fencing | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | None | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *SecurityElement* | | Extension |
| | **FGDC** | *SecurityPerimeterLine* | | Extension |
| | **SDSFIE** | *security_perimeter_line* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of security area at its greatest horizontal extents. Extents can be defined by fences, paint lines, or specific limits defined by airport authorities.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. [Source: SDSFIE Attribute Table] |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.12.4. Sterile Area

| **Definition:** 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 a foreign air carrier. [Source: DHS] | |
|---|---|
| **Feature Group** | Security |
| **Feature Class Name** | SterileArea |
| **Feature Type** | Polygon |

| **CADD Standard Requirements** | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| C-AFLD-SECR-STER | Airfield sterile area | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Secret | | | |
| **Equivalent Standards** | **AIXM** | *SecurityElement* | | Extension |
| | **FGDC** | *SterileArea* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of security area at its greatest horizontal extents. Extents can be defined by fences, paint lines, or specific limits defined by airport authorities.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.13. Group: SURFACE TRANSPORTATION

### 5.13.1. Bridge

| | | | | |
|---|---|---|---|---|
| **Definition:** A structure used by vehicles that allows passage over or under an obstacle such as a river, chasm, mountain, road or railroad. | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | Bridge | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-STRC-OTLN- | Bridges, piers, breakwaters, docks, floats, etc. - outlines | | | |
| L-SITE-BRDG- | Bridges | | | |
| M-MATL-CRAN- | Bridge cranes, jib cranes, and monorails | | | |
| V-SITE-STRC- | Structures (bridges, sheds, foundation pads, footings, etc.) | | | |
| V-STRC-OTLN- | Bridges, piers, breakwaters, docks, floats, etc. – outlines | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 (all) | Continuous (all) | 1 (all) | User Defined |
| **MicroStation Standards** | 7 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Bridge* | | Extension |
| | **FGDC** | *Bridge* | | Extension |
| | **SDSFIE** | *road_bridge_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Capture the outline of bridge at its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | The material used as a surface for the bridge. |

| | |
|---|---|
| bridgeType (Enumeration: CodeBridgeType) | |
| verticalStructureMaterial Enumeration: CodeVerticalStructureMaterial) | |
| directionality (Enumeration: CodeDirectionality) | Code indicating the traffic flow of the bridge being classified. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.13.2. Driveway Area**

| **Definition:** An access to a building or other vehicle parking lot or storage area. | | | | |
|---|---|---|---|---|
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | DrivewayArea | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-ROAD-DRIV- | Driveway edge of pavement | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *DrivewayArea* | | Extension |
| | **FGDC** | *DrivewayArea* | | Extension |
| | **SDSFIE** | *driveway_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Capture the outline of driveway at its greatest horizontal extents.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| surfaceMaterial (enumeration: CodeSurfaceMaterial) | The material used as a surface for the driveway. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.3. Driveway Centerline

| | | | | |
|---|---|---|---|---|
| **Definition:** The 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 network connectivity. | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | DrivewayCenterline | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-ROAD-DRIV-CNTR | Driveway centerline | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *DrivewayCenterline* | | Extension |
| | **FGDC** | *DrivewayCenterline* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect in the horizontal plane at the center of driveway, and to intersect with centerline of road/drive/ramp.* | | | | |
| **Monumentation** | No monumentation required. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.13.4. Parking Lot**

| | | | | |
|---|---|---|---|---|
| **Definition:** An area of an airport used for parking of automobiles, buses, etc. | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | ParkingLot | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-PKNG-ISLD- | Parking islands | | | |
| C-PKNG-OTLN- | Parking lots | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 84 (all) | Dashed-Spaced (all) | 1 mm (all) | User Defined |
| **MicroStation Standards** | 256 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *ParkingLot* | | Extension |
| | **FGDC** | *ParkingLot* | | Extension |
| | **SDSFIE** | *vehicle_parking_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of parking lot at its greatest horizontal extents.* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Any commonly used name for the parking area. |
| description (VARCHAR2 (255)) | A description of the parking lot. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| parkingLotUse (String 16) | The primary use of the parking area. |
| totalNumberSpaces (Integer) | The total parking spaces available in the area including handicapped or reserved spaces. |
| numberHandicapSpaces (Integer) | The total number of spaces marked as being handicapped parking. |
| owner (Enumeration: CodeOwner) | The owner of the parking lot |
| userFlag (String 254) | An 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. |
| surfaceType (Enumeration: codeSurfaceType) | Type of different materials used to construct the surface. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.5. Railroad Centerline

| | | | | |
|---|---|---|---|---|
| **Definition:** Represents the centerline of each pair of rails [Source: ANSI: Data Content Standards For Transportation Networks: Roads] | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | RailroadCenterline | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RAIL-CNTR- | Centerlines | | | |
| C-RAIL-TRAK- | Railroads | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 91 (all) | Continuous (all) | 1 (all) | User Defined |
| **MicroStation Standards** | 106 (all) | | 7 (all) | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *RailroadCenterline* | | Extension |
| | **FGDC** | *RailroadCenterline* | | Extension |
| | **SDSFIE** | *railroad_centerline* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *In the horizontal plane, collect a line along the centerline of each pair of rails. In the vertical plane, collect the height at the top of highest rail.* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Any commonly used name for the railroad. |
| description (VARCHAR2 (255)) | Any narrative remarks concerning the railroad. |
| Status (Enumeration codeStatus) | The current status as to whether the railroad segment is being used. |
| numberOfTracks (Integer) | The number of tracks present |
| owner (Enumeration: CodeOwner) | The owner of the rail track |
| isBridge (Boolean) | Indicates given railroad segment is bridge (Y- a is bridge, N- is not a bridge). |
| istunnel (Boolean) | Indicates given railroad segment is tunnel (Y- is a tunnel, N- is not a tunnel). |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| directionality (Enumeration: CodeDirectionality) | Code indicating the traffic flow of the railroad segment being classified. |
| segmentType (Enumeration: CodeSegmentType) | Code indication the sequence or position of the segment being classified by the feature. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.6. Railroad Yard

| | | | | |
|---|---|---|---|---|
| **Definition:** Represents a railroad yard [Source: ANSI: Data Content Standards For Transportation Networks: Roads] | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | RailroadYard | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-RAIL-YARD- | Railroad Yard | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *RailroadYard* | | Extension |
| | **FGDC** | *RailroadYard* | | Extension |
| | **SDSFIE** | *railroad_yard_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect outline of the yard area its greatest horizontal extents. Represented by fences, road or change in ground surfaces.* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | A name that represent the railroad yard. |
| description (VARCHAR2 (255)) | Any brief description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| owner (Enumeration: CodeOwner) | The owner of the rail track |
| userFlag (String 254) | An 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. |

| | |
|---|---|
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.7. Road Centerline

| | | | | |
|---|---|---|---|---|
| **Definition:** The 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. | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | RoadCenterline | | | |
| **Feature Type** | Line | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-ROAD-CNTR- | Centerlines | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 | Continuous | 1 | User Defined |
| **MicroStation Standards** | 5 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *RoadCenterline* | | Extension |
| | **FGDC** | *RoadCenterline* | | Extension |
| | **SDSFIE** | *road_centerline* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the centerline of road by splitting the edge of pavement or painted centerline, which ever is better defined.* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Any commonly used name for the road centerline. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| Color (Enumeration: CodeColor) | The color of the centerline marking. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.8. Road Point

| | | | | |
|---|---|---|---|---|
| **Definition:** A 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 [Source: ANSI: Data Content Standards For Transportation Networks: Roads] | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | RoadPoint | | | |
| **Feature Type** | Point | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-ROAD-POIN- | Road Point | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 2 | Continuous | 1 mm | User Defined |
| **MicroStation Standards** | 4 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *RoadPoint* | | Extension |
| | **FGDC** | *RoadPoint* | | Extension |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect point at desired location using the technique necessary to achieve accuracy* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.13.9. Road Segment

| | | | | |
|---|---|---|---|---|
| **Definition:** Represents a linear section of the physical road system designed for, or the result of, human or vehicular movement; must be continuous (no gaps) and cannot branch; no mandates are provided on how to segment the road system except that data providers adopt a consistent method [Source: ANSI: Data Content Standards For Transportation Networks: Roads] | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | RoadSegment | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-PROF-ROAD- | Roads | | | |
| C-ROAD-CURB- | Curbs | | | |
| C-ROAD-OTLN- | Roads | | | |
| V-PROF-ROAD- | Roads | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 1 (all) | Continuous (all) | 1 mm (all) | User Defined |
| **MicroStation Standards** | 3 (all) | | 7 (all) | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *RoadSegment* | | Extension |
| | **FGDC** | *RoadSegment* | | Extension |
| | **SDSFIE** | *road_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect all road segments as individual polygon objects. Where two or more roadway segments intersect, collect as separate polygons depicting beginning, intersection and end. Collect roadway at the outer edge of pavement or defined paint line (excluding shoulder).* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | A common name or street name used to refer to the stretch of road. |
| description (VARCHAR2 (255)) | A general description of the road. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| alternateName (String 30) | The alternate name or second name for the road. |
| route1Name (String 30) | The route number or other identifier that is affiliated with the first route type |
| route1Type (Enumeration: CodeRouteType) | The first route type for the road (Interstate, US, State, etc.) |

| | |
|---|---|
| route2Name (String 30) | The route number or other identifier that is affiliated with the second route type |
| route2Type (Enumeration: CodeRouteType) | The second route type for the road (Interstate, US, State, etc.) |
| route3Name (String 30) | The number or other identifier that is affiliated with the third route type |
| route3Type (Enumeration: CodeRouteType) | The third route type for the road (Interstate, US, State, etc.) |
| numberOfLanes (Integer) | The total number of lanes of traffic, counting both directions, not including turning lanes. [Source: SDSFIE Feature Table] |
| length (Real) | The length of the road segment measured at the centerline. [Source: SDSFIE Feature Table] |
| width (Real) | The average width of the road segment. [Source: SDSFIE Feature Table] |
| isBridge (Boolean) | Indicates given road segment is bridge (Y- a is bridge, N- is not a bridge). [Source: SDSFIE Feature Table] |
| isTunnel (Boolean) | Indicates given road segment is tunnel (Y- is a tunnel, Nis not a tunnel). [Source: SDSFIE Feature Table] |
| directionality (Enumeration: CodeDirectionality) | Code indicating the traffic flow on the road segment. |
| segmentType (Enumeration: CodeSegmentType) | Code indicating the type of segment being classified. |
| userFlag (String 254) | An 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. |
| surfaceType (Enumeration: codeSurfaceType) | Type of material used to construct the surface. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | Material used to construct the surface of the road. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.13.10.Sidewalk**

| | | | | |
|---|---|---|---|---|
| **Definition:** A paved or concrete pad used as a pedestrian walkway. Usually is composed of one or more SideWalkSegments. | | | | |
| **Feature Group** | Surface Transportation | | | |
| **Feature Class Name** | Sidewalk | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SITE-WALK- | Walks, trails and bicycle paths | | | |
| L-SITE-WALK- | Walks and steps | | | |
| V-SITE-WALK- | Walks, trails, and bicycle paths | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 8 (all) | Continuous (all) | 1 mm (all) | User Defined |
| **MicroStation Standards** | 9 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |

| | | | |
|---|---|---|---|
| **Equivalent Standards** | **AIXM** | *Sidewalk* | Extension |
| | **FGDC** | *Sidewalk* | Extension |
| | **SDSFIE** | *pedestrian_sidewalk_area* | |
| **Documentation and Submission Requirements** | None | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect all sidewalks as individual polygon objects. Where two or more sidewalks intersect, collect as separate polygons depicting beginning, intersection and end. Collect sidewalk at the outer edge of pavement.*

| | | | |
|---|---|---|---|
| **Monumentation** | None | | |
| **Survey Point Location** | **Horizontal** | **Vertical** | |
| | N/A | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | **Vertical** | |
| | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** | |
| | Five hundredth of arc second | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A brief description of any special characteristics of the sidewalk. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| walkUse (String 26) | A short description of the primary use of the sidewalk. |
| AmericanDisabilitiesAct (Boolean) | Boolean indicating whether or not the walkway is in compliance with the American Disabilities Act. |
| length (Real) | The overall length of the sidewalk section. |
| width (Real) | The mean width of the sidewalk section. |
| surfaceMaterial (Enumeration: CodeSurfaceMaterial) | Primary material used in the sidewalk and/or trail. |
| userFlag (String 254) | An 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. |
| segmentType (Enumeration: CodeSegmentType) | Code indicating the type of segment being classified. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.13.11.Tunnel**

| | |
|---|---|
| **Definition:** The area of a transportation passage, open at both ends, used to provide access through or under a natural obstacle. | |
| **Feature Group** | Surface Transportation |
| **Feature Class Name** | Tunnel |
| **Feature Type** | Polygon |

| **CADD Standard Requirements** | | | | |
|---|---|---|---|---|
| **Layer/Level** | **Description** | | | |
| L-SITE-TUNL- | Tunnels | | | |
| | **Color** | **Linetype** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 7 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 0 | | 7 | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Tunnel* | | Extension |
| | **FGDC** | *Tunnel* | | Extension |
| | **SDSFIE** | *tunnel_area* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the tunnel extending between the entrance points with a width defined by edge of pavement at either entrance.* | | | | |
| **Monumentation** | None | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | ± 5 ft | | ± 5 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredth of arc second | | Nearest Foot | |

| **Feature Attributes** | |
|---|---|
| **Attribute (Datatype)** | **Description** |
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| type (String 16) | The code that represents the type of tunnel |
| verticalClearance (Real) | Indicates the actual vertical clearance to the top of the tunnel imposed by any restrictions. |
| averageHeight (Real) | The average height of the tunnel. |
| averageWidth (Real) | The average width of the tunnel. |
| length (Real) | The length of the tunnel. |
| userFlag (String 254) | An 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. |
| directionality (Enumeration:CodeDirectionality) | |
| segmentType (Enumeration: CodeSegmentType) | Code indicating the type of segment being classified. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.14. Group: UTILITIES

### 5.14.1. Tank Site

| | | | | |
|---|---|---|---|---|
| **Definition:** An above or below grade receptacle or chamber for holding anything (e.g., fuels, water, waste, etc.) on a temporary basis prior to transfer, use, or disposal. Tanks are typically located on TankSites. | | | | |
| **Feature Group** | Utilities | | | |
| **Feature Class Name** | TankSite | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| L-DETL-TKST- | Tank Site | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 4 | Continuous | 1 MM | User Defined |
| **MicroStation Standards** | 7 | | 7 | |
| **Information Assurance Level** | Confidential | | | |
| **Equivalent Standards** | **AIXM** | *VerticalStructure* | | Core |
| | **FGDC** | *TankSite* | | |
| | **SDSFIE** | *undefined_tank_site* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Outer limits of tank outline.* | | | | |
| **Monumentation** | As required by local, State, or national standards for this type of data. | | | |
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | +/- 3 ft | | +/- 3 ft | N/A |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| | Five hundredths of arc second | | Nearest Foot | |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | A description or other unique information concerning the subject item, limited to 255 characters. [Source: SDSFIE Feature Table] |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| tankType (String 40) | A brief description of the tpye of tank. |
| topElevation (Real) | The 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. [Source: SDSFIE Feature Table] |
| lightCode (Boolean) | A code indicating that the obstacle is lighted [Source: AIXM] |
| verticalStructureMaterial (Enumeration: CodeVerticalStructureMaterial) | Classifies the predominant material of the vertical object |

| | |
|---|---|
| lightingType (Enumeration: codeLightingConfigurationType) | A description of the lighting system. Lighting system classifications are Approach; Airport; Runway; Taxiway; and Obstruction |
| markingFeatureType (Enumeration: codeMarkingFeatureType) | The type of the marking(s) |
| color (Enumeration: codeColor) | The color of the marking(s) |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.14.2. Utility Line**

| | | | |
|---|---|---|---|
| **Definition:** Any utility feature typically represented as a line. | | | |
| **Feature Group** | Utilities | | |
| **Feature Class Name** | UtilityLine | | |
| **Feature Type** | Line | | |
| **CADD Standard Requirements** | | | |
| **Layer/Level** | **Description** | **Layer/Level** | **Description** |
| C-FUEL-ABND- | Abandoned piping | M-HTCW-LTPL- | Main low temperature piping |
| C-FUEL-DEFL- | Defueling piping | M-HTCW-LTPS- | Low temperature service piping |
| C-FUEL-MAIN- | Main fuel piping | M-HTCW-STML- | Main steam piping |
| C-FUEL-SERV- | Service piping | M-HTCW-STMS- | Steam service piping |
| C-FUEL-TRCH- | Fuel line trench | M-HVAC-RETN- | Return ductwork |
| C-NGAS-ABND- | Abandoned piping | M-HVAC-SUPP- | Supply ductwork |
| C-NGAS-MAIN- | Main natural gas piping | M-HYDR-PIPE- | Hydraulic system piping |
| C-NGAS-SERV- | Service piping | M-INSL-PIPE- | Insulating oil piping |
| C-PROF-PIPE- | Piping | M-LUBE-PIPE- | Lubrication oil piping |
| C-SSWR-ABND- | Abandoned piping | M-PROC-PIPE- | Process piping |
| C-SSWR-MAIN- | Sanitary sewer piping | M-RCOV-PIPE- | Piping (includes fittings, valves) |
| C-SSWR-SERV- | Sanitary sewer service piping | M-REFG-PIPE- | Piping (includes fittings, valves) |
| C-STRM-ABND- | Abandoned piping | M-RWTR-PIPE- | Raw water piping |
| C-STRM-HDWL- | Headwalls and endwalls | M-STEM-PIPE- | Steam piping |
| C-STRM-MAIN- | Storm sewer piping | P-CMPA-PIPE- | Piping |
| C-STRM-ROOF- | Roof drain line | P-FUEL-FGAS- | Fuel gas piping |
| C-STRM-SERV- | Storm sewer service piping | P-FUEL-FOIL- | Fuel oil piping |
| C-STRM-SUBS- | Subsurface drain piping | P-LGAS-PIPE- | Piping |
| E-AIRF-DUCT- | Ductbanks | P-MDGS-PIPE- | Piping |
| E-CABL-COAX- | Coax cable | P-SANR-COND- | Condensate piping |
| E-CABL-FIBR- | Fiber optics cable | P-SANR-PIPE- | Piping |

| | | | |
|---|---|---|---|
| E-CABL-MULT- | Multi-conductor cable | P-SANR-VENT- | Vent piping |
| E-CABL-TRAY- | Cable trays and wireways | P-STRM-PIPE- | Storm drain piping |
| E-CIRC-CTRL- | Control and monitoring circuits | T-CABL-TRAY- | Cable trays and wireways |
| E-CIRC-MULT- | Multiple circuits | V-AIRF-DUCT- | Ductbanks |
| E-CIRC-SERS- | Series circuits | V-CIRC-CTRL- | Control and monitoring circuits |
| E-COMM-OVHD- | Overhead communications/telephone lines | V-CIRC-MULT- | Multiple circuits |
| E-COMM-UNDR- | Underground communications/telephone lines | V-CIRC-SERS- | Series circuits |
| E-DUCT-MULT- | Ductbank | V-COMM-OVHD- | Overhead communications/telephone lines |
| E-GRND-CIRC- | Circuits | V-COMM-UNDR- | Underground communications/telephone lines |
| E-LITE-CIRC- | Lighting circuits (including crosslines and homeruns) | V-DUCT-MULT- | Ductbank |
| E-POWR-CIRC- | Power circuits (including crosslines and homeruns) | V-ELEC-VALT- | Vaults |
| E-PRIM-OVHD- | Overhead electrical utility lines | V-FUEL-ABND- | Abandoned piping |
| E-PRIM-UNDR- | Underground electrical utility lines | V-FUEL-DEFL- | Defueling piping |
| E-SECD-OVHD- | Overhead electrical utility lines | V-FUEL-MAIN- | Main fuel piping |
| E-SECD-UNDR- | Underground electrical utility lines | V-FUEL-SERV- | Service piping |
| F-AFFF-PIPE- | Piping | V-FUEL-TRCH- | Fuel line trench |
| F-CO2S-PIPE- | CO2 piping or CO2 discharge nozzle piping | V-GTHP-PIPE- | Piping (includes fittings, valves) |
| F-HALN-PIPE- | Halon piping | V-HTCW-ABND- | Abandoned piping |
| F-IGAS-PIPE- | Inert gas piping | V-HTCW-CHLL- | Main chilled water piping |
| F-PROT-HOSE- | Fire hoses | V-HTCW-CHLS- | Chilled water service piping |
| F-SPRN-PIPE- | Sprinkler piping | V-HTCW-HTPL- | Main high temperature piping |
| F-WATR-PIPE- | Piping | V-HTCW-HTPS- | High temperature service piping |
| L-DETL-WIRE- | Wiring | V-HTCW-LTPL- | Main low temperature piping |
| L-IRRG-PIPE- | Piping | V-HTCW-LTPS- | Low temperature service piping |

| | | | |
|---|---|---|---|
| M-ACID-PIPE- | Acid, alkaline, and oil waste piping | V-HTCW-STML- | Main steam piping |
| M-ACID-VENT- | Acid, alkaline, and oil waste vent piping | V-HTCW-STMS- | Steam service piping |
| M-AFRZ-PIPE- | Anti-freeze piping | V-NGAS-ABND- | Abandoned piping |
| M-AFRZ-WAST- | Waste anti-freeze piping | V-PRIM-OVHD- | Overhead electrical utility lines |
| M-BRIN-PIPE- | Brine system piping | V-PRIM-UNDR- | Underground electrical utility lines |
| M-CHEM-PIPE- | Piping (includes fittings, valves) | V-PROF-PIPE- | Piping |
| M-CNDW-PIPE- | Condenser water piping | V-SECD-OVHD- | Overhead electrical utility lines |
| M-COND-PIPE- | Condensate piping (includes fittings, valves) | V-SECD-UNDR- | Underground electrical utility lines |
| M-CONT-WIRE- | Low voltage wiring | V-SSWR-ABND- | Abandoned piping |
| M-CWTR-PIPE- | Piping (includes fittings, valves) | V-SSWR-MAIN- | Sanitary sewer piping |
| M-DETL-PIPE- | Piping | V-SSWR-SERV- | Sanitary sewer service piping |
| M-DETL-WIRE- | Electrical wiring | V-STRM-ABND- | Abandoned piping |
| M-DUAL-PIPE- | Piping (includes fittings, valves) | V-STRM-MAIN- | Storm sewer piping |
| M-GTHP-PIPE- | Piping (includes fittings, valves) | V-STRM-SUBS- | Subsurface drain piping |
| M-HTCW-ABND- | Abandoned piping | V-UTIL-ELEC- | Power lines, lights, telephone poles, communication lines |
| M-HTCW-CHLL- | Main chilled water piping | V-UTIL-STEM- | Steam lines |
| M-HTCW-CHLS- | Chilled water service piping | V-UTIL-STRM- | Storm sewer lines, culverts, manholes, and headwalls |
| M-HTCW-HTPL- | Main high temperature piping | V-UTIL-WATR- | Water lines, hydrants, tanks |
| M-HTCW-HTPS- | High temperature service piping | | |

| | Color | Linetype | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 6 (all) | Continuous (all) | 1 MM (all) | User Defined |
| **MicroStation Standards** | 5 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *VerticalStructure* | | Core |
| | **FGDC** | *Utility* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Capture feature using technique as required to meet accuracies below. Collect in line segments.* | | | | |

| **Monumentation** | As required by local, State, or national standards for this type of data. | | | |
|---|---|---|---|---|
| **Survey Point Location** | **Horizontal** | | **Vertical** | |
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | A | ± 1 ft | ± 0.25 ft | N/A |
| | B | ± 3 ft | ± 10 ft | |
| | C | ± 5 ft | ± 10 ft | |
| | D | ± 10 ft | ± 20 ft | |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| **A** | Hundredth of arc second | | Nearest Tenth of a foot | |
| **B** | Five Hundredths of arc second | | Nearest Foot | |
| **C** | Five Hundredths of arc second | | Nearest Foot | |
| **D** | Tenth of arc second | | Nearest Foot | |

**Feature Attributes**

| **Attribute (Datatype)** | **Description** |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| utilityType (Enumeration: CodeUtilityType) | The type of utility represented by the feature. |
| userFlag (String 254) | An 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. |
| directionality (Enumeration: CodeDirectionality) | Code indicating the flow of the utility being classified. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

### 5.14.3. Utility Point

| **Definition:** Any utility feature typically represented as a point. | |
|---|---|
| **Feature Group** | Utilities |
| **Feature Class Name** | UtilityPoint |
| **Feature Type** | Point |

**CADD Standard Requirements**

| **Layer/Level** | **Description** | **Layer/Level** | **Description** |
|---|---|---|---|
| C-DETL-TANK- | Tanks | V-STRM-INLT- | Inlets (curb, surface, and catch basins) |
| C-FUEL-DEVC- | Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves | V-STRM-MHOL- | Manholes |
| C-FUEL-FTTG- | Caps, crosses, and tees | V-STRM-PUMP- | Pump stations |
| C-FUEL-HYDR- | Hydrant control pits | V-TRAN-PADM- | Pad mounted transformers |
| C-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes | V-TRAN-POLE- | Pole mounted transformers |

| | | | |
|---|---|---|---|
| C-FUEL-METR- | Meters | V-UTIL-LINE- | Utilities |
| C-FUEL-PUMP- | Booster pump stations | V-UTIL-NGAS- | Gas lines, features, and valves |
| C-FUEL-TANK- | Fuel tanks | V-UTIL-SSWR- | Sanitary lines and manholes |
| C-FUEL-VENT- | Vent pits | E-SPCL-SRFS- | Surface Sensor System |
| C-FUEL-VLVE- | Valve pits | T-COMM-ANTN- | Telecommunications antennae |
| C-NGAS-DEVC- | Hydrant fill points, lights, vents, markers, rectifiers, reducers, regulators, sources, tanks, drip pots, taps, and valves | C-SITE-SECU- | CMRA Security camera locations outside of buildings |
| C-NGAS-FTTG- | Caps, crosses, and tees | E-LITE-PANL- | Main distribution panels, switchboards, lighting panels |
| C-NGAS-METR- | Meters | E-LITE-SPCL- | Special fixtures |
| C-NGAS-PUMP- | Compressor stations | E-LITE-SWCH- | Lighting contactors, photoelectric controls, low-voltage lighting controls, etc. |
| C-NGAS-REDC- | Reducing stations | E-LITE-WALL- | Wall mounted fixtures |
| C-NGAS-VENT- | Vent pits | E-LTNG-COND- | Lightning protection conductors |
| C-NGAS-VLVE- | Valve pits/boxes | E-LTNG-TERM- | Lightning protection terminals |
| C-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves | E-POLE-UTIL- | Utility poles |
| C-SSWR-FILT- | Filtration beds | E-POWR-BUSW- | Busways and wireways |
| C-SSWR-FTTG- | Caps and cleanouts | E-POWR-CABL- | Cable trays |
| C-SSWR-JBOX- | Junction boxes and manholes | E-POWR-FEED- | Feeders |
| C-SSWR-PUMP- | Booster pump stations | E-POWR-GENR- | Generators and auxiliary equipment |
| C-SSWR-TANK- | Septic tanks | E-POWR-JBOX- | Junction boxes |
| C-STRM-CULV- | Culverts | E-POWR-PANL- | Panelboards, switchboards, MCC, unit substations |
| C-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates | E-POWR-SWCH- | Disconnect switches, motor starters, contactors, etc. |
| C-STRM-EROS- | Erosion control (riprap) | E-SERT-BURD- | Buried sensors |
| C-STRM-FMON- | Flow monitoring station | E-SERT-UNDR- | Buried sensors |
| C-STRM-FTTG- | Caps and cleanouts | E-SPCL-JBOX- | Junction boxes |
| C-STRM-INLT- | Inlets (curb, surface, and catch basins) | E-SPCL-PANL- | Panelboards, backing boards, patch panel racks |
| C-STRM-MHOL- | Manholes | E-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) |
| C-STRM-PUMP- | Pump stations | E-TRAN-PADM- | Pad mounted transformers |

| | | | |
|---|---|---|---|
| C-STRM-STRC- | Storm drainage, headwalls, inlets, manholes, culverts, and drainage structures | E-TRAN-POLE- | Pole mounted transformers |
| E-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | F-AFFF-EQPM- | Equipment |
| E-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | F-ALRM-INDC- | Indicating appliances |
| E-CATH-ANOD- | Sacrificial anode system | F-ALRM-MANL- | Manual fire alarm pull stations |
| E-CATH-CURR- | Impress current system | F-ALRM-PHON- | Fire service or emergency telephone stations |
| E-CATH-TEST- | Test stations | F-CO2S-EQPM- | Equipment |
| E-COMM-EQPM- | Other communications distribution equipment | F-CTRL-PANL- | Control panels |
| E-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices | F-HALN-EQPM- | Halon equipment |
| E-ELEC-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | F-IGAS-EQPM- | Inert gas equipment |
| E-ELEC-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | F-LITE-EMER- | Emergency fixtures |
| E-ELEC-SUBS- | Other substation equipment | F-LITE-EXIT- | Exit fixtures |
| E-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches | F-LSFT-EGRE- | Egress requirements designator |
| E-ELEC-VALT- | Vaults | F-LSFT-OCCP- | Occupant load for egress capacity |
| E-GRND-EQUI- | Equipotential ground system | F-WATR-CONN- | Fire department connections |
| E-GRND-REFR- | Reference ground system | F-WATR-HYDR- | Hydrants |
| E-LITE-EMER- | Emergency fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG) | F-WATR-PUMP- | Fire pumps |
| E-LITE-EXIT- | Exit fixtures (outline of light (if ceiling mounted) should go on | H-DECN-EQPM- | Decontamination equipment |
| E-LITE-CLNG- | Ceiling Fixtures | H-DISP-TANK- | Spill containment tanks |
| E-LITE-EXTR- | Exterior lights | L-DETL-VLVE- | Valves, fittings |
| E-LITE-JBOX- | Junction boxes | L-IRRG-SPKL- | Sprinklers |
| E-LITE-PANL- | Main distribution panels, switchboards, lighting panels | M-ACID-EQPM- | Acid, alkaline, and oil waste equipment |
| E-LITE-SPCL- | Special fixtures | M-BRIN-EQPM- | Brine system equipment |

| | | | |
|---|---|---|---|
| E-LITE-SWCH- | Lighting contactors, photoelectric controls, low-voltage lighting controls, etc. | M-CHEM-EQPM- | Equipment |
| E-LITE-WALL- | Wall mounted fixtures | M-CNDW-EQPM- | Condenser water equipment |
| E-LTNG-COND- | Lightning protection conductors | M-CONT-THER- | Thermostats, controls, instrumentation, and sensors |
| E-LTNG-TERM- | Lightning protection terminals | M-CWTR-EQPM- | Equipment |
| E-POLE-UTIL- | Utility poles | M-DETL-BOIL- | Boilers |
| E-POWR-BUSW- | Busways and wireways | M-DETL-COIL- | Coils and fin tubes |
| E-POWR-CABL- | Cable trays | M-DETL-DUCT- | Ducts |
| E-POWR-FEED- | Feeders | M-DETL-EQPT- | Equipment and fixtures |
| E-POWR-GENR- | Generators and auxiliary equipment | M-DETL-FANS- | Fans |
| E-POWR-JBOX- | Junction boxes | M-DETL-PUMP- | Pumps and compressors |
| E-POWR-PANL- | Panelboards, switchboards, MCC, unit substations | M-DETL-TANK- | Tanks |
| E-POWR-SWCH- | Disconnect switches, motor starters, contactors, etc. | M-DETL-TRAP- | Traps and drains |
| E-SERT-BURD- | Buried sensors | M-DETL-VENT- | Vents |
| E-SERT-UNDR- | Buried sensors | M-DETL-VLVE- | Valves and fittings |
| E-SPCL-JBOX- | Junction boxes | M-DUAL-EQPM- | Equipment |
| E-SPCL-PANL- | Panelboards, backing boards, patch panel racks | M-DUST-DUCT- | Dust and fume ductwork |
| E-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) | M-DUST-EQPM- | Dust and fume collection equipment |
| E-TRAN-PADM- | Pad mounted transformers | M-GTHP-EQPM- | Equipment |
| E-TRAN-POLE- | Pole mounted transformers | M-HTCW-CHLP- | Chilled water plant |
| F-AFFF-EQPM- | Equipment | M-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves |
| F-ALRM-INDC- | Indicating appliances | M-HTCW-FTTG- | Caps and flanges |
| F-ALRM-MANL- | Manual fire alarm pull stations | M-HTCW-HTPP- | High temperature water plant |
| F-ALRM-PHON- | Fire service or emergency telephone stations | M-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes |
| F-CO2S-EQPM- | Equipment | M-HTCW-PITS- | Valve pits/vaults, steam pits |
| F-CTRL-PANL- | Control panels | M-HTCW-PUMP- | Pump stations |
| F-HALN-EQPM- | Halon equipment | M-HTCW-RTRN- | Return for all HTCW lines |
| F-IGAS-EQPM- | Inert gas equipment | M-HVAC-DAMP- | Fire and smoke dampers |
| F-LITE-EMER- | Emergency fixtures | M-HVAC-EQPM- | Air system equipment |
| F-LITE-EXIT- | Exit fixtures | M-HVAC-ROOF- | Roof mounted HVAC equipment |
| F-LSFT-EGRE- | Egress requirements designator | M-HWTR-EQPM- | Equipment |

| | | | |
|---|---|---|---|
| F-LSFT-OCCP- | Occupant load for egress capacity | M-HWTR-PIPE- | Piping (includes fittings, valves) |
| F-WATR-CONN- | Fire department connections | M-HYDR-EQPM- | Hydraulic system equipment |
| F-WATR-HYDR- | Hydrants | M-INSL-EQPM- | Insulating oil equipment |
| F-WATR-PUMP- | Fire pumps | M-LUBE-EQPM- | Lubrication oil equipment |
| H-DECN-EQPM- | Decontamination equipment | M-MACH-BASE- | Machinery bases |
| H-DISP-TANK- | Spill containment tanks | M-MATL-LIFT- | Miscellaneous lifting equipment |
| L-DETL-VLVE- | Valves, fittings | M-PROC-EQPM- | Equipment |
| L-IRRG-SPKL- | Sprinklers | M-RCOV-EQPM- | Equipment |
| M-ACID-EQPM- | Acid, alkaline, and oil waste equipment | M-REFG-EQPM- | Equipment |
| M-BRIN-EQPM- | Brine system equipment | M-RWTR-EQPM- | Raw water equipment |
| M-CHEM-EQPM- | Equipment | M-STEM-EQPM- | Equipment |
| M-CNDW-EQPM- | Condenser water equipment | P-CMPA-EQPM- | Equipment |
| M-CONT-THER- | Thermostats, controls, instrumentation, and sensors | P-FUEL-EQPM- | Equipment |
| M-CWTR-EQPM- | Equipment | P-LGAS-EQPM- | Equipment |
| M-DETL-BOIL- | Boilers | P-MDGS-EQPM- | Equipment |
| M-DETL-COIL- | Coils and fin tubes | P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) |
| M-DETL-DUCT- | Ducts | P-SANR-FLDR- | Floor drains, sinks, and cleanouts |
| M-DETL-EQPT- | Equipment and fixtures | S-BRAC-VERT- | Vertical bracing |
| M-DETL-FANS- | Fans | S-GRAT-SUBS- | Subsurface grating |
| M-DETL-PUMP- | Pumps and compressors | S-PIPE-GATE- | Gates (flap gates, sluice gates, other) |
| M-DETL-TANK- | Tanks | T-CABL-COAX- | Coax cable |
| M-DETL-TRAP- | Traps and drains | T-CABL-FIBR- | Fiber optics cable |
| M-DETL-VENT- | Vents | T-CABL-MULT- | Multi-conductor cable |
| M-DETL-VLVE- | Valves and fittings | T-COMM-JBOX- | Junction boxes |
| M-DUAL-EQPM- | Equipment | T-EQPM-COPP- | Distribution equipment for copper |
| M-DUST-DUCT- | Dust and fume ductwork | T-EQPM-FIBR- | Distribution equipment for fiber optic |
| M-DUST-EQPM- | Dust and fume collection equipment | T-EQPM-OTHR- | Other telecommunications equipment |
| M-GTHP-EQPM- | Equipment | T-JACK-DATA- | Data/LAN jacks |
| M-HTCW-CHLP- | Chilled water plant | T-JACK-PHON- | Telephone jacks |

| | | | |
|---|---|---|---|
| M-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves | V-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers |
| M-HTCW-FTTG- | Caps and flanges | V-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices |
| M-HTCW-HTPP- | High temperature water plant | V-CATH-ANOD- | Sacrificial anode system |
| M-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes | V-CATH-CURR- | Impress current system |
| M-HTCW-PITS- | Valve pits/vaults, steam pits | V-CATH-TEST- | Test stations |
| M-HTCW-PUMP- | Pump stations | V-COMM-EQPM- | Other communications distribution equipment |
| M-HTCW-RTRN- | Return for all HTCW lines | V-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices |
| M-HVAC-DAMP- | Fire and smoke dampers | V-ELEC-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers |
| M-HVAC-EQPM- | Air system equipment | V-ELEC-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices |
| M-HVAC-ROOF- | Roof mounted HVAC equipment | V-ELEC-SUBS- | Other substation equipment |
| M-HWTR-EQPM- | Equipment | V-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches |
| M-HWTR-PIPE- | Piping (includes fittings, valves) | V-FUEL-DEVC- | Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves |
| M-HYDR-EQPM- | Hydraulic system equipment | V-FUEL-FTTG- | Caps, crosses, and tees |
| M-INSL-EQPM- | Insulating oil equipment | V-FUEL-HYDR- | Hydrant control pits |
| M-LUBE-EQPM- | Lubrication oil equipment | V-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes |
| M-MACH-BASE- | Machinery bases | V-FUEL-METR- | Meters |
| M-MATL-LIFT- | Miscellaneous lifting equipment | V-FUEL-PUMP- | Booster pump stations |
| M-PROC-EQPM- | Equipment | V-FUEL-TANK- | Fuel tanks |
| M-RCOV-EQPM- | Equipment | V-FUEL-VENT- | Vent pits |

| | | | |
|---|---|---|---|
| M-REFG-EQPM- | Equipment | V-FUEL-VLVE- | Valve pits |
| M-RWTR-EQPM- | Raw water equipment | V-GTHP-EQPM- | Equipment |
| M-STEM-EQPM- | Equipment | V-HTCW-CHLP- | Chilled water plant |
| P-CMPA-EQPM- | Equipment | V-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves |
| P-FUEL-EQPM- | Equipment | V-HTCW-FTTG- | Caps and flanges |
| P-LGAS-EQPM- | Equipment | V-HTCW-HTPP- | High temperature water plant |
| P-MDGS-EQPM- | Equipment | V-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes |
| P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) | V-HTCW-PITS- | Valve pits/vaults, steam pits |
| P-SANR-FLDR- | Floor drains, sinks, and cleanouts | V-HTCW-PUMP- | Pump stations |
| S-BRAC-VERT- | Vertical bracing | V-HTCW-RTRN- | Return for all HTCW lines |
| S-GRAT-SUBS- | Subsurface grating | V-LITE-FIXT- | Exterior Lights |
| S-PIPE-GATE- | Gates (flap gates, sluice gates, other) | V-NGAS-DEVC- | Hydrant fill points, lights, vents, markers, rectifiers, reducers, regulators, sources, tanks, drip pots, taps, and valves |
| T-CABL-COAX- | Coax cable | V-NGAS-FTTG- | Caps, crosses, and tees |
| T-CABL-FIBR- | Fiber optics cable | V-NGAS-METR- | Meters |
| T-CABL-MULT- | Multi-conductor cable | V-NGAS-PUMP- | Compressor stations |
| T-COMM-JBOX- | Junction boxes | V-NGAS-REDC- | Reducing stations |
| T-EQPM-COPP- | Distribution equipment for copper | V-NGAS-VENT- | Vent pits |
| T-EQPM-FIBR- | Distribution equipment for fiber optic | V-NGAS-VLVE- | Valve pits/boxes |
| T-EQPM-OTHR- | Other telecommunications equipment | V-POLE-UTIL- | Utility poles |
| T-JACK-DATA- | Data/LAN jacks | V-PROF-MHOL- | Manholes |
| T-JACK-PHON- | Telephone jacks | V-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) |
| V-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | V-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves |
| V-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-SSWR-FILT- | Filtration beds |
| V-CATH-ANOD- | Sacrificial anode system | V-SSWR-FTTG- | Caps and cleanouts |
| V-CATH-CURR- | Impress current system | V-SSWR-JBOX- | Junction boxes and manholes |

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| V-CATH-TEST- | Test stations | V-SSWR-PUMP- | Booster pump stations |
| V-COMM-EQPM- | Other communications distribution equipment | V-SSWR-TANK- | Septic tanks |
| V-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-STRM-CHUT- | Chutes and concrete erosion control structures |
| V-ELEC-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | V-STRM-CULV- | Culverts |
| V-ELEC-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates |
| V-ELEC-SUBS- | Other substation equipment | V-STRM-EROS- | Erosion control (riprap) |
| V-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches | V-STRM-FMON- | Flow monitoring station |
| V-FUEL-DEVC- | Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves | V-STRM-FTTG- | Caps and cleanouts |
| V-FUEL-FTTG- | Caps, crosses, and tees | V-STRM-HDWL- | Headwalls and endwalls |
| V-FUEL-HYDR- | Hydrant control pits | V-STRM-INLT- | Inlets (curb, surface, and catch basins) |
| V-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes | V-STRM-MHOL- | Manholes |
| V-FUEL-METR- | Meters | V-STRM-PUMP- | Pump stations |
| V-FUEL-PUMP- | Booster pump stations | V-TRAN-PADM- | Pad mounted transformers |
| V-FUEL-TANK- | Fuel tanks | V-TRAN-POLE- | Pole mounted transformers |
| V-FUEL-VENT- | Vent pits | V-UTIL-LINE- | Utilities |
| V-FUEL-VLVE- | Valve pits | V-UTIL-NGAS- | Gas lines, features, and valves |
| V-GTHP-EQPM- | Equipment | V-UTIL-SSWR- | Sanitary lines and manholes |
| V-HTCW-CHLP- | Chilled water plant | E-SPCL-SRFS- | Surface Sensor System |
| V-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves | T-COMM-ANTN- | Telecommunications antennae |
| V-HTCW-FTTG- | Caps and flanges | C-SITE-SECU- | CMRA Security camera locations outside of buildings |
| V-HTCW-HTPP- | High temperature water plant | F-IGAS-EQPM- | Inert gas equipment |
| V-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes | F-LITE-EMER- | Emergency fixtures |
| V-HTCW-PITS- | Valve pits/vaults, steam pits | F-LITE-EXIT- | Exit fixtures |
| V-HTCW-PUMP- | Pump stations | F-LSFT-EGRE- | Egress requirements designator |

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| V-HTCW-RTRN- | Return for all HTCW lines | F-LSFT-OCCP- | Occupant load for egress capacity |
| V-LITE-FIXT- | Exterior Lights | F-WATR-CONN- | Fire department connections |
| V-NGAS-DEVC- | Hydrant fill points, lights, vents, markers, rectifiers, reducers, regulators, sources, tanks, drip pots, taps, and valves | F-WATR-HYDR- | Hydrants |
| V-NGAS-FTTG- | Caps, crosses, and tees | F-WATR-PUMP- | Fire pumps |
| V-NGAS-METR- | Meters | H-DECN-EQPM- | Decontamination equipment |
| V-NGAS-PUMP- | Compressor stations | H-DISP-TANK- | Spill containment tanks |
| V-NGAS-REDC- | Reducing stations | L-DETL-VLVE- | Valves, fittings |
| V-NGAS-VENT- | Vent pits | L-IRRG-SPKL- | Sprinklers |
| V-NGAS-VLVE- | Valve pits/boxes | M-ACID-EQPM- | Acid, alkaline, and oil waste equipment |
| V-POLE-UTIL- | Utility poles | M-BRIN-EQPM- | Brine system equipment |
| V-PROF-MHOL- | Manholes | M-CHEM-EQPM- | Equipment |
| V-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) | M-CNDW-EQPM- | Condenser water equipment |
| V-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves | M-CONT-THER- | Thermostats, controls, instrumentation, and sensors |
| V-SSWR-FILT- | Filtration beds | M-CWTR-EQPM- | Equipment |
| V-SSWR-FTTG- | Caps and cleanouts | M-DETL-BOIL- | Boilers |
| V-SSWR-JBOX- | Junction boxes and manholes | M-DETL-COIL- | Coils and fin tubes |
| V-SSWR-PUMP- | Booster pump stations | M-DETL-DUCT- | Ducts |
| V-SSWR-TANK- | Septic tanks | M-DETL-EQPT- | Equipment and fixtures |
| V-STRM-CHUT- | Chutes and concrete erosion control structures | M-DETL-FANS- | Fans |
| V-STRM-CULV- | Culverts | M-DETL-PUMP- | Pumps and compressors |
| V-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates | M-DETL-TANK- | Tanks |
| V-STRM-EROS- | Erosion control (riprap) | M-DETL-TRAP- | Traps and drains |
| V-STRM-FMON- | Flow monitoring station | M-DETL-VENT- | Vents |
| V-STRM-FTTG- | Caps and cleanouts | M-DETL-VLVE- | Valves and fittings |
| V-STRM-HDWL- | Headwalls and endwalls | M-DUAL-EQPM- | Equipment |
| V-STRM-INLT- | Inlets (curb, surface, and catch basins) | M-DUST-DUCT- | Dust and fume ductwork |
| V-STRM-MHOL- | Manholes | M-DUST-EQPM- | Dust and fume collection equipment |
| V-STRM-PUMP- | Pump stations | M-GTHP-EQPM- | Equipment |
| V-TRAN-PADM- | Pad mounted transformers | M-HTCW-CHLP- | Chilled water plant |

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| V-TRAN-POLE- | Pole mounted transformers | M-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves |
| V-UTIL-LINE- | Utilities | M-HTCW-FTTG- | Caps and flanges |
| V-UTIL-NGAS- | Gas lines, features, and valves | M-HTCW-HTPP- | High temperature water plant |
| V-UTIL-SSWR- | Sanitary lines and manholes | M-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes |
| E-SPCL-SRFS- | Surface Sensor System | M-HTCW-PITS- | Valve pits/vaults, steam pits |
| T-COMM-ANTN- | Telecommunications antennae | M-HTCW-PUMP- | Pump stations |
| C-SITE-SECU- | MRA Security camera locations outside of buildings | M-HTCW-RTRN- | Return for all HTCW lines |
| C-STRM-FTTG- | Caps and cleanouts | M-HVAC-DAMP- | Fire and smoke dampers |
| C-STRM-INLT- | Inlets (curb, surface, and catch basins) | M-HVAC-EQPM- | Air system equipment |
| C-STRM-MHOL- | Manholes | M-HVAC-ROOF- | Roof mounted HVAC equipment |
| C-STRM-PUMP- | Pump stations | M-HWTR-EQPM- | Equipment |
| C-STRM-STRC- | Storm drainage, headwalls, inlets, manholes, culverts, and drainage structures | M-HWTR-PIPE- | Piping (includes fittings, valves) |
| E-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | M-HYDR-EQPM- | Hydraulic system equipment |
| E-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | M-INSL-EQPM- | Insulating oil equipment |
| E-CATH-ANOD- | Sacrificial anode system | M-LUBE-EQPM- | Lubrication oil equipment |
| E-CATH-CURR- | Impress current system | M-MACH-BASE- | Machinery bases |
| E-CATH-TEST- | Test stations | M-MATL-LIFT- | Miscellaneous lifting equipment |
| E-COMM-EQPM- | Other communications distribution equipment | M-PROC-EQPM- | Equipment |
| E-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices | M-RCOV-EQPM- | Equipment |
| E-ELEC-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | M-REFG-EQPM- | Equipment |
| E-ELEC-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | M-RWTR-EQPM- | Raw water equipment |
| E-ELEC-SUBS- | Other substation equipment | M-STEM-EQPM- | Equipment |

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| E-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches | P-CMPA-EQPM- | Equipment |
| E-ELEC-VALT- | Vaults | P-FUEL-EQPM- | Equipment |
| E-GRND-EQUI- | Equipotential ground system | P-LGAS-EQPM- | Equipment |
| E-GRND-REFR- | Reference ground system | P-MDGS-EQPM- | Equipment |
| E-LITE-EMER- | Emergency fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG) | P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) |
| E-LITE-EXIT- | Exit fixtures (outline of light (if ceiling mounted) should go on | P-SANR-FLDR- | Floor drains, sinks, and cleanouts |
| E-LITE-CLNG- | | S-BRAC-VERT- | Vertical bracing |
| E-LITE-EXTR- | Exterior lights | S-GRAT-SUBS- | Subsurface grating |
| E-LITE-JBOX- | Junction boxes | S-PIPE-GATE- | Gates (flap gates, sluice gates, other) |
| E-LITE-PANL- | Main distribution panels, switchboards, lighting panels | T-CABL-COAX- | Coax cable |
| E-LITE-SPCL- | Special fixtures | T-CABL-FIBR- | Fiber optics cable |
| E-LITE-SWCH- | Lighting contactors, photoelectric controls, low-voltage lighting controls, etc. | T-CABL-MULT- | Multi-conductor cable |
| E-LITE-WALL- | Wall mounted fixtures | M-DUAL-EQPM- | Equipment |
| E-LTNG-COND- | Lightning protection conductors | M-DUST-DUCT- | Dust and fume ductwork |
| E-LTNG-TERM- | Lightning protection terminals | M-DUST-EQPM- | Dust and fume collection equipment |
| E-POLE-UTIL- | Utility poles | M-GTHP-EQPM- | Equipment |
| E-POWR-BUSW- | Busways and wireways | M-HTCW-CHLP- | Chilled water plant |
| E-POWR-CABL- | Cable trays | M-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves |
| E-POWR-FEED- | Feeders | M-HTCW-FTTG- | Caps and flanges |
| E-POWR-GENR- | Generators and auxiliary equipment | M-HTCW-HTPP- | High temperature water plant |
| E-POWR-JBOX- | Junction boxes | M-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes |
| E-POWR-PANL- | Panelboards, switchboards, MCC, unit substations | M-HTCW-PITS- | Valve pits/vaults, steam pits |
| E-POWR-SWCH- | Disconnect switches, motor starters, contactors, etc. | M-HTCW-PUMP- | Pump stations |
| E-SERT-BURD- | Buried sensors | M-HTCW-RTRN- | Return for all HTCW lines |
| E-SERT-UNDR- | Buried sensors | M-HVAC-DAMP- | Fire and smoke dampers |
| E-SPCL-JBOX- | Junction boxes | M-HVAC-EQPM- | Air system equipment |
| E-SPCL-PANL- | Panelboards, backing boards, patch panel racks | M-HVAC-ROOF- | Roof mounted HVAC equipment |

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| E-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) | M-HWTR-EQPM- | Equipment |
| E-TRAN-PADM- | Pad mounted transformers | M-HWTR-PIPE- | Piping (includes fittings, valves) |
| E-TRAN-POLE- | Pole mounted transformers | M-HYDR-EQPM- | Hydraulic system equipment |
| F-AFFF-EQPM- | Equipment | M-INSL-EQPM- | Insulating oil equipment |
| F-ALRM-INDC- | Indicating appliances | M-LUBE-EQPM- | Lubrication oil equipment |
| F-ALRM-MANL- | Manual fire alarm pull stations | M-MACH-BASE- | Machinery bases |
| F-ALRM-PHON- | Fire service or emergency telephone stations | M-MATL-LIFT- | Miscellaneous lifting equipment |
| F-CO2S-EQPM- | Equipment | M-PROC-EQPM- | Equipment |
| F-CTRL-PANL- | Control panels | M-RCOV-EQPM- | Equipment |
| F-HALN-EQPM- | Halon equipment | M-REFG-EQPM- | Equipment |
| F-IGAS-EQPM- | Inert gas equipment | M-RWTR-EQPM- | Raw water equipment |
| F-LITE-EMER- | Emergency fixtures | M-STEM-EQPM- | Equipment |
| F-LITE-EXIT- | Exit fixtures | P-CMPA-EQPM- | Equipment |
| F-LSFT-EGRE- | Egress requirements designator | P-FUEL-EQPM- | Equipment |
| F-LSFT-OCCP- | Occupant load for egress capacity | P-LGAS-EQPM- | Equipment |
| F-WATR-CONN- | Fire department connections | P-MDGS-EQPM- | Equipment |
| F-WATR-HYDR- | Hydrants | P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) |
| F-WATR-PUMP- | Fire pumps | P-SANR-FLDR- | Floor drains, sinks, and cleanouts |
| H-DECN-EQPM- | Decontamination equipment | S-BRAC-VERT- | Vertical bracing |
| H-DISP-TANK- | Spill containment tanks | S-GRAT-SUBS- | Subsurface grating |
| L-DETL-VLVE- | Valves, fittings | S-PIPE-GATE- | Gates (flap gates, sluice gates, other) |
| L-IRRG-SPKL- | Sprinklers | T-CABL-COAX- | Coax cable |
| M-ACID-EQPM- | Acid, alkaline, and oil waste equipment | T-CABL-FIBR- | Fiber optics cable |
| M-BRIN-EQPM- | Brine system equipment | T-CABL-MULT- | Multi-conductor cable |
| M-CHEM-EQPM- | Equipment | P-CMPA-EQPM- | Equipment |
| M-CNDW-EQPM- | Condenser water equipment | P-FUEL-EQPM- | Equipment |
| M-CONT-THER- | Thermostats, controls, instrumentation, and sensors | P-LGAS-EQPM- | Equipment |
| M-CWTR-EQPM- | Equipment | P-MDGS-EQPM- | Equipment |
| M-DETL-BOIL- | Boilers | P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) |
| M-DETL-COIL- | Coils and fin tubes | P-SANR-FLDR- | Floor drains, sinks, and cleanouts |
| M-DETL-DUCT- | Ducts | S-BRAC-VERT- | Vertical bracing |

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| M-DETL-EQPT- | Equipment and fixtures | S-GRAT-SUBS- | Subsurface grating |
| M-DETL-FANS- | Fans | S-PIPE-GATE- | Gates (flap gates, sluice gates, other) |
| M-DETL-PUMP- | Pumps and compressors | T-CABL-COAX- | Coax cable |
| M-DETL-TANK- | Tanks | T-CABL-FIBR- | Fiber optics cable |
| M-DETL-TRAP- | Traps and drains | T-CABL-MULT- | Multi-conductor cable |
| M-DETL-VENT- | Vents | T-COMM-JBOX- | Junction boxes |
| M-DETL-VLVE- | Valves and fittings | T-EQPM-COPP- | Distribution equipment for copper |
| M-DUAL-EQPM- | Equipment | T-EQPM-FIBR- | Distribution equipment for fiber optic |
| M-DUST-DUCT- | Dust and fume ductwork | T-EQPM-OTHR- | Other telecommunications equipment |
| M-DUST-EQPM- | Dust and fume collection equipment | T-JACK-DATA- | Data/LAN jacks |
| M-GTHP-EQPM- | Equipment | T-JACK-PHON- | Telephone jacks |
| M-HTCW-CHLP- | Chilled water plant | V-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers |
| M-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves | V-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices |
| M-HTCW-FTTG- | Caps and flanges | V-CATH-ANOD- | Sacrificial anode system |
| M-HTCW-HTPP- | High temperature water plant | V-CATH-CURR- | Impress current system |
| M-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes | V-CATH-TEST- | Test stations |
| M-HTCW-PITS- | Valve pits/vaults, steam pits | V-COMM-EQPM- | Other communications distribution equipment |
| M-HTCW-PUMP- | Pump stations | V-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices |
| M-HTCW-RTRN- | Return for all HTCW lines | V-ELEC-SUBS- | Other substation equipmentmarkers, oil/water separators, reducers, regulators, and valves |
| M-HVAC-DAMP- | Fire and smoke dampers | V-FUEL-FTTG- | Caps, crosses, and tees |
| M-HVAC-EQPM- | Air system equipment | V-FUEL-HYDR- | Hydrant control pits |
| M-HVAC-ROOF- | Roof mounted HVAC equipment | V-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes |
| M-HWTR-EQPM- | Equipment | V-FUEL-METR- | Meters |

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| M-HWTR-PIPE- | Piping (includes fittings, valves) | V-FUEL-PUMP- | Booster pump stations |
| M-HYDR-EQPM- | Hydraulic system equipment | V-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches |
| M-INSL-EQPM- | Insulating oil equipment | V-FUEL-DEVC- | Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves |
| M-LUBE-EQPM- | Lubrication oil equipment | V-FUEL-FTTG- | Caps, crosses, and tees |
| M-MACH-BASE- | Machinery bases | V-FUEL-HYDR- | Hydrant control pits |
| M-MATL-LIFT- | Miscellaneous lifting equipment | V-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes |
| M-PROC-EQPM- | Equipment | V-FUEL-METR- | Meters |
| M-RCOV-EQPM- | Equipment | V-FUEL-PUMP- | Booster pump stations |
| M-REFG-EQPM- | Equipment | V-FUEL-TANK- | Fuel tanks |
| M-RWTR-EQPM- | Raw water equipment | V-FUEL-VENT- | Vent pits |
| M-STEM-EQPM- | Equipment | V-FUEL-VLVE- | Valve pits |
| P-CMPA-EQPM- | Equipment | V-GTHP-EQPM- | Equipment |
| P-FUEL-EQPM- | Equipment | V-HTCW-CHLP- | Chilled water plant |
| P-LGAS-EQPM- | Equipment | V-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves |
| P-MDGS-EQPM- | Equipment | V-HTCW-FTTG- | Caps and flanges |
| P-SANR-EQPM- | Equipment (e.g., sand/oil/water separators) | V-HTCW-HTPP- | High temperature water plant |
| P-SANR-FLDR- | Floor drains, sinks, and cleanouts | V-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes |
| S-BRAC-VERT- | Vertical bracing | V-HTCW-PITS- | Valve pits/vaults, steam pits |
| S-GRAT-SUBS- | Subsurface grating | V-HTCW-PUMP- | Pump stations |
| S-PIPE-GATE- | Gates (flap gates, sluice gates, other) | V-HTCW-RTRN- | Return for all HTCW lines |
| T-CABL-COAX- | Coax cable | V-LITE-FIXT- | Exterior Lights |
| T-CABL-FIBR- | Fiber optics cable | V-NGAS-DEVC- | Hydrant fill points, lights, vents, markers, rectifiers, reducers, regulators, sources, tanks, drip pots, taps, and valves |
| T-CABL-MULT- | Multi-conductor cable | V-NGAS-FTTG- | Caps, crosses, and tees |

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| T-COMM-JBOX- | Junction boxes | V-NGAS-METR- | Meters |
| T-EQPM-COPP- | Distribution equipment for copper | V-NGAS-PUMP- | Compressor stations |
| T-EQPM-FIBR- | Distribution equipment for fiber optic | V-NGAS-REDC- | Reducing stations |
| T-EQPM-OTHR- | Other telecommunications equipment | V-NGAS-VENT- | Vent pits |
| T-JACK-DATA- | Data/LAN jacks | V-NGAS-VLVE- | Valve pits/boxes |
| T-JACK-PHON- | Telephone jacks | V-POLE-UTIL- | Utility poles |
| V-AIRF-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | V-PROF-MHOL- | Manholes |
| V-AIRF-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) |
| V-CATH-ANOD- | Sacrificial anode system | V-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves |
| V-CATH-CURR- | Impress current system | V-SSWR-FILT- | Filtration beds |
| V-CATH-TEST- | Test stations | V-SSWR-FTTG- | Caps and cleanouts |
| V-COMM-EQPM- | Other communications distribution equipment | V-SSWR-JBOX- | Junction boxes and manholes |
| V-COMM-JBOX- | Communication junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-SSWR-PUMP- | Booster pump stations |
| V-ELEC-DEVC- | Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers | V-SSWR-TANK- | Septic tanks |
| V-ELEC-JBOX- | Junction boxes, pull boxes, manholes, handholes, pedestals, splices | V-STRM-CHUT- | Chutes and concrete erosion control structures |
| V-ELEC-SUBS- | Other substation equipment | V-STRM-CULV- | Culverts |
| V-ELEC-SWCH- | Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle switches | V-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates |
| V-FUEL-DEVC- | Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves | V-STRM-EROS- | Erosion control (riprap) |
| V-FUEL-FTTG- | Caps, crosses, and tees | V-STRM-FMON- | Flow monitoring station |
| V-FUEL-HYDR- | Hydrant control pits | V-STRM-FTTG- | Caps and cleanouts |
| V-FUEL-JBOX- | Junction boxes, manholes, handholes, test boxes | V-STRM-HDWL- | Headwalls and endwalls |

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| V-FUEL-METR- | Meters | V-STRM-INLT- | Inlets (curb, surface, and catch basins) |
| V-FUEL-PUMP- | Booster pump stations | V-STRM-MHOL- | Manholes |
| V-FUEL-TANK- | Fuel tanks | V-STRM-PUMP- | Pump stations |
| V-FUEL-VENT- | Vent pits | V-TRAN-PADM- | Pad mounted transformers |
| V-FUEL-VLVE- | Valve pits | V-TRAN-POLE- | Pole mounted transformers |
| V-GTHP-EQPM- | Equipment | V-UTIL-LINE- | Utilities |
| V-HTCW-CHLP- | Chilled water plant | V-UTIL-NGAS- | Gas lines, features, and valves |
| V-HTCW-DEVC- | Rigid anchors, anchor guides, rectifiers, reducers, markers, meters, pumps, regulators, tanks, and valves | V-UTIL-SSWR- | Sanitary lines and manholes |
| V-HTCW-FTTG- | Caps and flanges | E-SPCL-SRFS- | Surface Sensor System |
| V-HTCW-HTPP- | High temperature water plant | T-COMM-ANTN- | Telecommunications antennae |
| V-HTCW-JBOX- | Junction boxes, manholes, handholes, test boxes | C-SITE-SECU- | CMRA Security camera locations outside of buildings |
| V-HTCW-PITS- | Valve pits/vaults, steam pits | V-NGAS-VLVE- | Valve pits/boxes |
| V-HTCW-PUMP- | Pump stations | V-POLE-UTIL- | Utility poles |
| V-HTCW-RTRN- | Return for all HTCW lines | V-PROF-MHOL- | Manholes |
| V-LITE-FIXT- | Exterior Lights | V-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) |
| V-NGAS-DEVC- | Hydrant fill points, lights, vents, markers, rectifiers, reducers, regulators, sources, tanks, drip pots, taps, and valves | V-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves |
| V-NGAS-FTTG- | Caps, crosses, and tees | V-SSWR-FILT- | Filtration beds |
| V-NGAS-METR- | Meters | V-SSWR-FTTG- | Caps and cleanouts |
| V-NGAS-PUMP- | Compressor stations | V-SSWR-JBOX- | Junction boxes and manholes |
| V-NGAS-REDC- | Reducing stations | V-SSWR-PUMP- | Booster pump stations |
| V-NGAS-VENT- | Vent pits | V-SSWR-TANK- | Septic tanks |
| V-NGAS-VLVE- | Valve pits/boxes | V-STRM-CHUT- | Chutes and concrete erosion control structures |
| V-POLE-UTIL- | Utility poles | V-STRM-CULV- | Culverts |
| V-PROF-MHOL- | Manholes | V-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates |
| V-SPCL-SYST- | Special systems (UMCS, EMCS, CATV, etc.) | V-STRM-EROS- | Erosion control (riprap) |
| V-SSWR-DEVC- | Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves | V-STRM-FMON- | Flow monitoring station |
| V-SSWR-FILT- | Filtration beds | V-STRM-FTTG- | Caps and cleanouts |

| | | | |
|---|---|---|---|
| V-SSWR-FTTG- | Caps and cleanouts | V-STRM-HDWL- | Headwalls and endwalls |
| V-SSWR-JBOX- | Junction boxes and manholes | V-STRM-INLT- | Inlets (curb, surface, and catch basins) |
| V-SSWR-PUMP- | Booster pump stations | V-STRM-MHOL- | Manholes |
| V-SSWR-TANK- | Septic tanks | V-STRM-PUMP- | Pump stations |
| V-STRM-CHUT- | Chutes and concrete erosion control structures | V-TRAN-PADM- | Pad mounted transformers |
| V-STRM-CULV- | Culverts | V-TRAN-POLE- | Pole mounted transformers |
| V-STRM-DEVC- | Downspouts, flumes, oil/water separators, and flap gates | V-UTIL-LINE- | Utilities |
| V-STRM-EROS- | Erosion control (riprap) | V-UTIL-NGAS- | Gas lines, features, and valves |
| V-STRM-FMON- | Flow monitoring station | V-UTIL-SSWR- | Sanitary lines and manholes |
| V-STRM-FTTG- | Caps and cleanouts | E-SPCL-SRFS- | Surface Sensor System |
| V-STRM-HDWL- | Headwalls and endwalls | T-COMM-ANTN- | Telecommunications antennae |
| | | C-SITE-SECU- | CMRA Security camera locations outside of buildings |

| | Color | Line type | Line Weight | Symbol |
|---|---|---|---|---|
| **AutoDesk Standards** | 6 (all) | Continuous (all) | 1 MM (all) | User Defined |
| **MicroStation Standards** | 5 (all) | | 7 (all) | |

| | | | |
|---|---|---|---|
| **Information Assurance Level** | Restricted | | |
| **Equivalent Standards** | **AIXM** | *Utility* | Core |
| | **FGDC** | *VerticalStructure* | |
| | **SDSFIE** | *None* | |
| **Documentation and Submission Requirements** | None | | |
| **Related Features** | | | |

**Data Capture Rules:** *Collect the center of the object at the highest point.*

| | | |
|---|---|---|
| **Monumentation** | N/A | |
| **Survey Point Location** | **Horizontal** | **Vertical** |
| | N/A | N/A |

| | | | | |
|---|---|---|---|---|
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | A | ± 1ft | ± 0.25ft | |
| | B | ± 3 ft | ± 10 ft | |
| | C | ± 5 ft | ± 10 ft | |
| | D | ± 10 ft | ± 20 ft | |

| **Resolution** | **Geographic Coordinates** | **Distances and Elevations** |
|---|---|---|
| **A** | Hundredth of arc second | Nearest Tenth of a foot |
| **B** | Five Hundredths of arc second | Nearest Foot |
| **C** | Five Hundredths of arc second | Nearest Foot |
| **D** | Tenth of arc second | Nearest Foot |

**Feature Attributes**

| Attribute (Datatype) | Description |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |

| | |
|---|---|
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| utilityType (Enumeration: CodeUtilityType) | The type of utility the feature represents. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

**5.14.4. Utility Polygon**

| | | | | |
|---|---|---|---|---|
| **Definition:** Any utility feature typically represented as a polygon, or hydro vaults. | | | | |
| **Feature Group** | Utilities | | | |
| **Feature Class Name** | UtilityPolygon | | | |
| **Feature Type** | Polygon | | | |
| **CADD Standard Requirements** | | | | |
| **Layer/Level** | **Description** | | | |
| C-SSWR-LAGN- | Lagoons | | | |
| C-SSWR-LEAC- | Leach field | | | |
| C-SSWR-NITF- | Nitrification drain fields | | | |
| C-SSWR-PLNT- | Treatment plants | | | |
| C-STRM-AFFF- | AFFF lagoon/detention pond | | | |
| C-STRM-CHUT- | Chutes and concrete erosion control structures | | | |
| C-STRM-LAGN- | Lagoons, ponds, watersheds, and basins | | | |
| E-AIRF-VALT- | Airfield lighting vaults | | | |
| V-STRM-LAGN- | Lagoons, ponds, watersheds, and basins | | | |
| E-COMM-VALT- | Communications vault | | | |
| V-COMM-VALT- | Communications vault | | | |
| V-SSWR-LAGN- | Lagoons | | | |
| V-SSWR-LEAC- | Leach field | | | |
| V-SSWR-NITF- | Nitrification drain fields | | | |
| V-SSWR-PLNT- | Treatment plants | | | |
| V-STRM-AFFF- | AFFF lagoon/detention pond | | | |
| | **Color** | **Line type** | **Line Weight** | **Symbol** |
| **AutoDesk Standards** | 6 (all) | Continuous (all) | 1 MM (all) | User Defined |
| **MicroStation Standards** | 5 (all) | | 7 (all) | |
| **Information Assurance Level** | Restricted | | | |
| **Equivalent Standards** | **AIXM** | *Utility* | | Core |
| | **FGDC** | *VerticalStructure* | | |
| | **SDSFIE** | *None* | | |
| **Documentation and Submission Requirements** | None | | | |
| **Related Features** | | | | |
| **Data Capture Rules:** *Collect the outline of utility feature to its greatest horizontal extents.* | | | | |
| **Monumentation** | N/A | | | |

| **Survey Point Location** | **Horizontal** | | **Vertical** | |
|---|---|---|---|---|
| | N/A | | N/A | |
| **Accuracy Requirements (in feet)** | **Horizontal** | | **Vertical** | |
| | | | **Orthometric** | **Ellipsoidal** |
| | A | ± 1ft | ± 0.25ft | N/A |
| | B | ± 3 ft | ± 10 ft | |
| | C | ± 5 ft | ± 10 ft | |
| | D | ± 10 ft | ± 20 ft | |
| **Resolution** | **Geographic Coordinates** | | **Distances and Elevations** | |
| **A** | Hundredth of arc second | | Nearest Tenth of a foot | |
| **B** | Five Hundredths of arc second | | Nearest Foot | |
| **C** | Five Hundredths of arc second | | Nearest Foot | |
| **D** | Tenth of arc second | | Nearest Foot | |

**Feature Attributes**

| **Attribute (Datatype)** | **Description** |
|---|---|
| name (VARCHAR2 (50)) | Name of the feature. |
| description (VARCHAR2 (255)) | Description of the feature. |
| status (Enumeration: codeStatus) | A temporal description of the operational status of the feature. This attribute is used to describe real-time status. |
| utilityType (Enumeration: CodeUtilityType) | The type of utility the feature represents. |
| userFlag (String 254) | An 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. |
| Alternative (Number(2)) | Discriminator used to tie features of a plan or proposal together into a version. |

## 5.15. ATTRIBUTE ENUMERATIONS

The following tables contain the expected values in fields that are of type enumeration.

### 5.15.1. CodeAcqusitionType

| Value | Description |
|---|---|
| FEE_SIMPLE | Purchased real property; absolute ownership |
| EASEMENT | Rights given to use land in a specific manner |
| LEASED | Restricted use of land for a specific period of time |

### 5.15.2. CodeAirportFacilityType

| Value | Description |
|---|---|
| AD | Airport only |
| AH | Airport with helicopter landing area |
| H | Helicopter (the stall speed method of calculating aircraft category does not apply) |
| HP | Heliport only |
| LS | Landing Site |

### 5.15.3. CodeApproachCategory

| Value | Description |
|---|---|
| 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 |

### 5.15.4. CodeApproachGuidance

| Value | Description |
|---|---|
| NON_VERTICAL | Runway is used for or planned use is for Non-Vertically Guided operations |
| PRECISION_CAT_I | Runway is used or or planned use is for Precision Category 1 operations |
| PRECISION_CAT_II | Runway is used for or planned use is for Precision Category II operations |
| PRECISION_CAT_IIIA | Runway is used for or planned use is for Precision Category IIIa operations. |
| PRECISION_CAT_IIIB | Runway is used for or planned use is for Precision Category IIIb operations |
| PRECISION_CAT_IIIC | Runway is used for or planned use is for Precision Category IIIc operations |
| VERTICAL | Runway is used for or planned use is for Vertically Guided (other than precision) operations |
| VISUAL | Runway is used for or planned use is for visual operations only |

### 5.15.5. CodeApronType

| Value | Description |
|---|---|
| CARGO | Cargo loading area used for the loading/unloading of cargo |
| DE_ICING | Area used for deicing of aircraft |
| FUEL | Area used for aircraft fueling |

| Value | Description |
|---|---|
| HARDSTAND | Area used for parking a single aircraft. More temporary than parking |
| LOADING | Passenger loading area used for the loading/unloading of passengers |
| MAINT | Area used for maintenance of aircraft |
| MILITARY | Apron used by military |
| NORMAL | Apron |
| OTHER | Other |
| PARKING | Area used to park aircraft |
| RAMP | Access pavement between maintenance hangars opening to the apron and the apron edge |
| STAIRS | Stairs |
| TAXILANE | Area where plane is still under terminal control (airline dispatched) as opposed to tower control. |
| TEMPORARY | Temporary |
| TURNAROUND | Area used for aircraft to turn around |

### 5.15.6. CodeBridgeType

| Value | Description |
|---|---|
| ROAD | Road or highway bridge |
| RR | Railroad or Monorail Bridge |
| RWY | Runway Bridge |
| TWY | Taxiway Bridge |

### 5.15.7. CodeBuoyType

| Value | Description |
|---|---|
| Bn | Beacon |
| C | Can Buoy |
| F | Fixed |
| J | Junction (S or T Dayboard) |
| K | Rectangular (Range Dayboard) |
| Lb | Lighted buoy |
| M | Octagonal Dayboard |
| N | Nun Buoy |
| O | Other marking |
| S | Square Dayboard |
| T | Triangle Dayboard |

### 5.15.8. CodeClassAirspace

| 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 |
| 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 |

**5.15.9. CodeColor**

| Value | Description |
|---|---|
| AMBER | Amber [U.S. CADD] |
| BLACK | Black [U.S. CADD] |
| BLUE | Blue [U.S. CADD] |
| BROWN | Brown [U.S. CADD] |
| GREEN | Green [U.S. CADD] |
| GREEN-GREEN | Bidirectional (Source AC 150/5345-46C) |
| GREEN-RED | Bidirectional (Source AC 150/5345-46C) |
| GREEN-YELLOW | Bidirectional (Source AC 150/5345-46C) |
| 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] |
| RED-GREEN | Bidirectional (Source AC 150/5345-46C) |
| RED-RED | Bidirectional (Source AC 150/5345-46C) |
| TBD | To be determined |
| VIOLET | Violet [U.S. CADD] |
| WHITE | White [U.S. CADD] |
| WHITE-RED | Bidirectional (Source AC 150/5345-46C) |
| WHITE-WHITE | Bidirectional (Source AC 150/5345-46C) |
| WHITE-YELLOW | Bidirectional (Source AC 150/5345-46C) |
| YELLOW | Yellow [U.S. CADD] |
| YELLOW-GREEN | Bidirectional (Source AC 150/5345-46C) |
| YELLOW-RED | Bidirectional (Source AC 150/5345-46C) |
| YELLOW-YELLOW | Bidirectional (Source AC 150/5345-46C) |

**5.15.10. CodeCompassLocation**

| Value | Description |
|---|---|
| E | East (076 to 105° magnetic) |
| ESE | East Southeast (106 to 135° magnetic) |
| N | North (346 to 015° magnetic) |
| NE | Northeast (046 to 075° magnetic) |
| NNE | North Northeast (016 to 045° magnetic) |
| NW | Northwest (316 to 345° magnetic) |
| S | South (166 to 195° magnetic) |
| SE | Southeast (136 to 165° magnetic) |
| SSW | South Southwest (196 to 225° magnetic) |
| SW | Southwest (226 to 255° magnetic) |
| W | West (256 to 285° magnetic) |
| WNW | West NorthWest (286 to 315° magnetic) |

**5.15.11.CodeCoordinatedUseType**

| Value | Description |
|---|---|
| A | Aeronautical |
| M | Multiple |
| R | Recreational boating/fishing |
| S | Commercial Shipping/Fishing |

**5.15.12.CodeCoordinateZone**

| Value | Description |
|---|---|
| AK-1 | NAD27 Alaska State Planes- Zone 1- US Foot (EPSG #26731) |
| AK-10 | NAD27 Alaska State Planes- Zone 10- US Foot (EPSG #26740) |
| AK-2 | NAD27 Alaska State Planes- Zone 2- US Foot (EPSG #26732) |
| AK-3 | NAD27 Alaska State Planes- Zone 3- US Foot (EPSG #26733) |
| AK-4 | NAD27 Alaska State Planes- Zone 4- US Foot (EPSG #26734) |
| AK-5 | NAD27 Alaska State Planes- Zone 5- US Foot (EPSG #26735) |
| AK-6 | NAD27 Alaska State Planes- Zone 6- US Foot (EPSG #26736) |
| AK-7 | NAD27 Alaska State Planes- Zone 7- US Foot (EPSG #26737) |
| AK-8 | NAD27 Alaska State Planes- Zone 8- US Foot (EPSG #26738) |
| AK83-1 | NAD83 Alaska State Planes- Zone 1- Meter (EPSG #26931) |
| AK83-10 | NAD83 Alaska State Planes- Zone 10- Meter (EPSG #26940) |
| AK83-10F | NAD83 Alaska State Planes- Zone 10- US Foot |
| AK83-1F | NAD83 Alaska State Planes- Zone 1- US Foot |
| AK83-2 | NAD83 Alaska State Planes- Zone 2- Meter (EPSG #26932) |
| AK83-2F | NAD83 Alaska State Planes- Zone 2- US Foot |
| AK83-3 | NAD83 Alaska State Planes- Zone 3- Meter (EPSG #26933) |
| AK83-3F | NAD83 Alaska State Planes- Zone 3- US Foot |
| AK83-4 | NAD83 Alaska State Planes- Zone 4- Meter (EPSG #26934) |
| AK83-4F | NAD83 Alaska State Planes- Zone 4- US Foot |
| AK83-5 | NAD83 Alaska State Planes- Zone 5- Meter (EPSG #26935) |
| AK83-5F | NAD83 Alaska State Planes- Zone 5- US Foot |
| AK83-6 | NAD83 Alaska State Planes- Zone 6- Meter (EPSG #26936) |
| AK83-6F | NAD83 Alaska State Planes- Zone 6- US Foot |
| AK83-7 | NAD83 Alaska State Planes- Zone 7- Meter (EPSG #26937) |
| AK83-7F | NAD83 Alaska State Planes- Zone 7- US Foot |
| AK83-8 | NAD83 Alaska State Planes- Zone 8- Meter (EPSG #26938) |
| AK83-8F | NAD83 Alaska State Planes- Zone 8- US Foot |
| AK83-9 | NAD83 Alaska State Planes- Zone 9- Meter (EPSG #26939) |
| AK83-9F | NAD83 Alaska State Planes- Zone 9- US Foot |
| AK-9 | NAD27 Alaska State Planes- Zone 9- US Foot (EPSG #26739) |
| AL83-E | NAD83 Alabama State Planes- Eastern Zone- Meter (EPSG #26929) |
| AL83-EF | NAD83 Alabama State Planes- Eastern Zone- US Foot |
| AL83-W | NAD83 Alabama State Planes- Western Zone- Meter (EPSG #26930) |
| AL83-WF | NAD83 Alabama State Planes- Western Zone- US Foot |
| AL-E | NAD27 Alabama State Planes- Eastern Zone- US Foot (EPSG #26729) |
| ALHP-E | HPGN Alabama State Planes- Eastern Zone- Meter (EPSG #2759) |
| ALHP-EF | HPGN Alabama State Planes- Eastern Zone- US Foot |
| ALHP-W | HPGN Alabama State Planes- Western Zone- Meter (EPSG #2760) |
| ALHP-WF | HPGN Alabama State Planes- Western Zone- US Foot |
| AL-W | NAD27 Alabama State Planes- Western Zone- US Foot (EPSG #26730) |

| Value | Description |
|---|---|
| AR83-N | NAD83 Arkansas State Planes- Northern Zone- Meter (EPSG #26951) |
| AR83-NF | NAD83 Arkansas State Planes- Northern Zone- US Foot |
| AR83-S | NAD83 Arkansas State Planes- Southern Zone- Meter (EPSG #26952) |
| AR83-SF | NAD83 Arkansas State Planes- Southern Zone- US Foot |
| ARHP-N | HARN (HPGN) Arkansas State Planes- Northern Zone- Meter (EPSG #2764) |
| ARHP-NF | HARN (HPGN) Arkansas State Planes- Northern Zone- US Foot |
| ARHP-S | HARN (HPGN) Arkansas State Planes- Southern Zone- Meter (EPSG #2765) |
| ARHP-SF | HARN (HPGN) Arkansas State Planes- Southern Zone- US Foot |
| AR-N | NAD27 Arkansas State Planes- Northern Zone- US Foot (EPSG #26751) |
| AR-S | NAD27 Arkansas State Planes- Southern Zone- US Foot (EPSG #26752) |
| AZ83-C | NAD83 Arizona State Planes- Central Zone- Meter (EPSG #26949) |
| AZ83-CCM | NAD83 Arizona State Planes- Central Zone- Centimeter |
| AZ83-CF | NAD83 Arizona State Planes- Central Zone- US Foot |
| AZ83-CIF | NAD83 Arizona State Planes- Central Zone- Intnl Foot (EPSG #2223) |
| AZ83-E | NAD83 Arizona State Planes- East Zone- Meter (EPSG #26948) |
| AZ83-EF | NAD83 Arizona State Planes- East Zone- US Foot |
| AZ83-EIF | NAD83 Arizona State Planes- East Zone- Intnl Foot (EPSG #2222) |
| AZ83-W | NAD83 Arizona State Planes- West Zone- Meter (EPSG #26950) |
| AZ83-WF | NAD83 Arizona State Planes- West Zone- US Foot |
| AZ83-WIF | NAD83 Arizona State Planes- West Zone- Intnl Foot (EPSG #2224) |
| AZ-C | NAD27 Arizona State Planes- Central Zone- US Foot (EPSG #26749) |
| AZ-E | NAD27 Arizona State Planes- East Zone- US Foot (EPSG #26748) |
| AZHP-C | HPGN Arizona State Planes- Central Zone- Meter (EPSG #2762) |
| AZHP-CF | HPGN Arizona State Planes- Central Zone- US Foot |
| AZHP-CIF | HPGN Arizona State Planes- Central Zone- Intnl Foot (EPSG #2868) |
| AZHP-E | HPGN Arizona State Planes- East Zone- Meter (EPSG #2761) |
| AZHP-EF | HPGN Arizona State Planes- East Zone- US Foot |
| AZHP-EIF | HPGN Arizona State Planes- East Zone- Intnl Foot (EPSG #2867) |
| AZHP-W | HPGN Arizona State Planes- West Zone- Meter (EPSG #2763) |
| AZHP-WF | HPGN Arizona State Planes- West Zone- US Foot |
| AZHP-WIF | HPGN Arizona State Planes- West Zone- Intnl Foot (EPSG #2869) |
| AZ-W | NAD27 Arizona State Planes- West Zone- US Foot (EPSG #26750) |
| CA83-I | NAD83 California State Planes- Zone I- Meter (EPSG #26941) |
| CA83-IF | NAD83 California State Planes- Zone I- US Foot (EPSG #2225) |
| CA83-II | NAD83 California State Planes- Zone II- Meter (EPSG #26942) |
| CA83-IIF | NAD83 California State Planes- Zone II- US Foot (EPSG #2226) |
| CA83-III | NAD83 California State Planes- Zone III- Meter (EPSG #26943) |
| CA83IIIF | NAD83 California State Planes- Zone III- US Foot (EPSG #2227) |
| CA83-IV | NAD83 California State Planes- Zone IV- Meter (EPSG #26944) |
| CA83-IVF | NAD83 California State Planes- Zone IV- US Foot (EPSG #2228) |
| CA83-V | NAD83 California State Planes- Zone V- Meter (EPSG #26945) |
| CA83-VF | NAD83 California State Planes- Zone V- US Foot (EPSG #2229) |
| CA83-VI | NAD83 California State Planes- Zone VI- Meter (EPSG #26946) |
| CA83-VIF | NAD83 California State Planes- Zone VI- US Foot (EPSG #2230) |
| CAHP-I | HPGN California State Planes- Zone I- Meter (EPSG #2766) |
| CAHP-IF | HPGN California State Planes- Zone I- US Foot (EPSG #2870) |
| CAHP-II | HPGN California State Planes- Zone II- Meter (EPSG #2767) |

| Value | Description |
|---|---|
| CAHP-IIF | HPGN California State Planes- Zone II- US Foot (EPSG #2871) |
| CAHP-III | HPGN California State Planes- Zone III- Meter (EPSG #2768) |
| CAHPIIIF | HPGN California State Planes- Zone III- US Foot (EPSG #2872) |
| CAHP-IV | HPGN California State Planes- Zone IV- Meter (EPSG #2769) |
| CAHP-IVF | HPGN California State Planes- Zone IV- US Foot (EPSG #2873) |
| CAHP-V | HPGN California State Planes- Zone V- Meter (EPSG #2770) |
| CAHP-VF | HPGN California State Planes- Zone V- US Foot (EPSG #2874) |
| CAHP-VI | HPGN California State Planes- Zone VI- Meter (EPSG #2771) |
| CAHP-VIF | HPGN California State Planes- Zone VI- US Foot (EPSG #2875) |
| CA-I | NAD27 California State Planes- Zone I- US Foot (EPSG #26741) |
| CA-II | NAD27 California State Planes- Zone II- US Foot (EPSG #26742) |
| CA-III | NAD27 California State Planes- Zone III- US Foot (EPSG #26743) |
| CA-IV | NAD27 California State Planes- Zone IV- US Foot (EPSG #26744) |
| CA-V | NAD27 California State Planes- Zone V- US Foot (EPSG #26745) |
| CA-VI | NAD27 California State Planes- Zone VI- US Foot (EPSG #26746) |
| CA-VII | NAD27 California State Planes- Zone VII- US Foot (EPSG #26747) |
| CO83-C | NAD83 Colorado State Planes- Central Zone- Meter (EPSG #26954) |
| CO83-CF | NAD83 Colorado State Planes- Central Zone- US Foot (EPSG #2232) |
| CO83-N | NAD83 Colorado State Planes- Northern Zone- Meter (EPSG #26953) |
| CO83-NF | NAD83 Colorado State Planes- Northern Zone- US Foot (EPSG #2231) |
| CO83-S | NAD83 Colorado State Planes- Southern Zone- Meter (EPSG #26955) |
| CO83-SF | NAD83 Colorado State Planes- Southern Zone- US Foot (EPSG #2233) |
| CO-C | NAD27 Colorado State Planes- Central Zone- US Foot (EPSG #26754) |
| COHP-C | HPGN Colorado State Planes- Central Zone- Meter (EPSG #2773) |
| COHP-CF | HPGN Colorado State Planes- Central Zone- US Foot (EPSG #2877) |
| COHP-N | HPGN Colorado State Planes- Northern Zone- Meter (EPSG #2772) |
| COHP-NF | HPGN Colorado State Planes- Northern Zone- US Foot (EPSG #2876) |
| COHP-S | HPGN Colorado State Planes- Southern Zone- Meter (EPSG #2774) |
| COHP-SF | HPGN Colorado State Planes- Southern Zone- US Foot (EPSG #2878) |
| CO-N | NAD27 Colorado State Planes- Northern Zone- US Foot (EPSG #26753) |
| CO-S | NAD27 Colorado State Planes- Southern Zone- US Foot (EPSG #26755) |
| CT | NAD27 Connecticut State Plane Zone- US Foot (EPSG #26756) |
| CT83 | NAD83 Connecticut State Plane Zone- Meter (EPSG #26956) |
| CT83F | NAD83 Connecticut State Plane Zone- US Foot (EPSG #2234) |
| CTHP | HPGN/HARN Connecticut State Plane Zone- Meter (EPSG #2775) |
| CTHPF | HPGN/HARN Connecticut State Plane Zone- US Foot (EPSG #2879) |
| DE | NAD27 Delaware State Planes- US Foot (EPSG #26757) |
| DE83 | NAD83 Delaware State Planes- Meter (EPSG #26957) |
| DE83F | NAD83 Delaware State Planes- US Foot (EPSG #2235) |
| DEHP | HPGN Delaware State Planes- Meter (EPSG #2776) |
| DEHPF | HPGN Delaware State Planes- US Foot (EPSG #2880) |
| FL83-E | NAD83 Florida State Planes- Eastern Zone- Meter (EPSG #26958) |
| FL83-EF | NAD83 Florida State Planes- Eastern Zone- US Foot (EPSG #2236) |
| FL83-N | NAD83 Florida State Planes- Northern Zone- Meter (EPSG #26960) |
| FL83-NF | NAD83 Florida State Planes- Northern Zone- US Foot (EPSG #2238) |
| FL83-W | NAD83 Florida State Planes- Western Zone- Meter (EPSG #26959) |
| FL83-WF | NAD83 Florida State Planes- Western Zone- US Foot (EPSG #2237) |

| Value | Description |
|---|---|
| FL-E | NAD27 Florida State Planes- Eastern Zone- US Foot (EPSG #26758) |
| FLHP-E | HPGN Florida State Planes- Eastern Zone- Meter (EPSG #2777) |
| FLHP-EF | HPGN Florida State Planes- Eastern Zone- US Foot (EPSG #2881) |
| FLHP-N | HPGN Florida State Planes- Northern Zone- Meter (EPSG #2779) |
| FLHP-NF | HPGN Florida State Planes- Northern Zone- US Foot (EPSG #2883) |
| FLHP-W | HPGN Florida State Planes- Western Zone- Meter (EPSG #2778) |
| FLHP-WF | HPGN Florida State Planes- Western Zone- US Foot (EPSG #2882) |
| FL-N | NAD27 Florida State Planes- Northern Zone- US Foot (EPSG #26760) |
| FL-W | NAD27 Florida State Planes- Western Zone- US Foot (EPSG #26759) |
| GA83-E | NAD83 Georgia State Planes- Eastern Zone- Meter (EPSG #26966) |
| GA83-EF | NAD83 Georgia State Planes- Eastern Zone- US Foot (EPSG #2239) |
| GA83-W | NAD83 Georgia State Planes- Western Zone- Meter (EPSG #26967) |
| GA83-WF | NAD83 Georgia State Planes- Western Zone- US Foot (EPSG #2240) |
| GA-E | NAD27 Georgia State Planes- Eastern Zone- US Foot (EPSG #26766) |
| GAHP-E | HARN (HPGN) Georgia State Planes- Eastern Zone- Meter (EPSG #2780) |
| GAHP-EF | HARN (HPGN) Georgia State Planes- Eastern Zone- US Foot (EPSG #2884) |
| GAHP-W | HARN (HPGN) Georgia State Planes- Western Zone- Meter (EPSG #2781) |
| GAHP-WF | HARN (HPGN) Georgia State Planes- Western Zone- US Foot (EPSG #2885) |
| GA-W | NAD27 Georgia State Planes- Western Zone- US Foot (EPSG #26767) |
| HI-1 | NAD27 Hawaii State Planes- Zone 1- US Foot |
| HI-2 | NAD27 Hawaii State Planes- Zone 2- US Foot |
| HI-3 | NAD27 Hawaii State Planes- Zone 3- US Foot |
| HI-4 | NAD27 Hawaii State Planes- Zone 4- US Foot |
| HI-5 | NAD27 Hawaii State Planes- Zone 5- US Foot |
| HI83-1 | NAD83 Hawaii State Planes- Zone 1- Meter (EPSG #26961) |
| HI83-1F | NAD83 Hawaii State Planes- Zone 1- US Foot |
| HI83-2 | NAD83 Hawaii State Planes- Zone 2- Meter (EPSG #26962) |
| HI83-2F | NAD83 Hawaii State Planes- Zone 2- US Foot |
| HI83-3 | NAD83 Hawaii State Planes- Zone 3- Meter (EPSG #26963) |
| HI83-3F | NAD83 Hawaii State Planes- Zone 3- US Foot |
| HI83-4 | NAD83 Hawaii State Planes- Zone 4- Meter (EPSG #26964) |
| HI83-4F | NAD83 Hawaii State Planes- Zone 4- US Foot |
| HI83-5 | NAD83 Hawaii State Planes- Zone 5- Meter (EPSG #26965) |
| HI83-5F | NAD83 Hawaii State Planes- Zone 5- US Foot |
| HIHP-1 | NAD83(HARN) / Hawaii zone 1 (EPSG #2782) |
| HIHP-2 | NAD83(HARN) / Hawaii zone 2 (EPSG #2783) |
| HIHP-3 | NAD83(HARN) / Hawaii zone 3 (EPSG #2784) |
| HIHP-4 | NAD83(HARN) / Hawaii zone 4 (EPSG #2785) |
| HIHP-5 | NAD83(HARN) / Hawaii zone 5 (EPSG #2786) |
| IA83-N | NAD83 Iowa State Planes- Northern Zone- Meter (EPSG #26975) |
| IA83-NF | NAD83 Iowa State Planes- Northern Zone- US Foot |
| IA83-S | NAD83 Iowa State Planes- Southern Zone- Meter (EPSG #26976) |
| IA83-SF | NAD83 Iowa State Planes- Southern Zone- US Foot |
| IAHP-N | HARN (HPGN) Iowa State Planes- Northern Zone- Meter (EPSG #2794) |
| IAHP-NF | HARN (HPGN) Iowa State Planes- Northern Zone- US Foot |
| IAHP-S | HARN (HPGN) Iowa State Planes- Southern Zone- Meter (EPSG #2795) |
| IAHP-SF | HARN (HPGN) Iowa State Planes- Southern Zone- US Foot |

| Value | Description |
|---|---|
| IA-N | NAD27 Iowa State Planes- Northern Zone- US Foot (EPSG #26775) |
| IA-S | NAD27 Iowa State Planes- Southern Zone- US Foot (EPSG #26776) |
| ID83-C | NAD83 Idaho State Planes- Central Zone- Meter (EPSG #26969) |
| ID83-CF | NAD83 Idaho State Planes- Central Zone- US Foot (EPSG #2242) |
| ID83-E | NAD83 Idaho State Planes- Eastern Zone- Meter (EPSG #26968) |
| ID83-EF | NAD83 Idaho State Planes- Eastern Zone- US Foot (EPSG #2241) |
| ID83-W | NAD83 Idaho State Planes- Western Zone- Meter (EPSG #26970) |
| ID83-WF | NAD83 Idaho State Planes- Western Zone- US Foot (EPSG #2243) |
| ID-C | NAD27 Idaho State Planes- Central Zone- US Foot (EPSG #26769) |
| ID-E | NAD27 Idaho State Planes- Eastern Zone- US Foot (EPSG #26768) |
| IDHP-C | HARN (HPGN) Idaho State Planes- Central Zone- Meter (EPSG #2788) |
| IDHP-CF | HARN (HPGN) Idaho State Planes- Central Zone- US Foot (EPSG #2887) |
| IDHP-E | HARN (HPGN) Idaho State Planes- Eastern Zone- Meter (EPSG #2787) |
| IDHP-EF | HARN (HPGN) Idaho State Planes- Eastern Zone- US Foot (EPSG #2886) |
| IDHP-W | HARN (HPGN) Idaho State Planes- Western Zone- Meter (EPSG #2789) |
| IDHP-WF | HARN (HPGN) Idaho State Planes- Western Zone- US Foot (EPSG #2888) |
| ID-W | NAD27 Idaho State Planes- Western Zone- US Foot (EPSG #26770) |
| IL83-E | NAD83 Illinois State Planes- Eastern Zone- Meter (EPSG #26971) |
| IL83-EF | NAD83 Illinois State Planes- Eastern Zone- US Foot |
| IL83-W | NAD83 Illinois State Planes- Western Zone- Meter (EPSG #26972) |
| IL83-WF | NAD83 Illinois State Planes- Western Zone- US Foot |
| IL-E | NAD27 Illinois State Planes- Eastern Zone- US Foot (EPSG #26771) |
| ILHP-E | HARN (HPGN) Illinois State Planes- Eastern Zone- Meter (EPSG #2790) |
| ILHP-EF | HARN (HPGN) Illinois State Planes- Eastern Zone- US Foot |
| ILHP-W | HARN (HPGN) Illinois State Planes- Western Zone- Meter (EPSG #2791) |
| ILHP-WF | HARN (HPGN) Illinois State Planes- Western Zone- US Foot |
| ILLIMAP | NAD27 Illinois Survey Mapping System- US Foot |
| IL-W | NAD27 Illinois State Planes- Western Zone- US Foot (EPSG #26772) |
| IN83-E | NAD83 Indiana State Planes- Eastern Zone- Meter (EPSG #26973) |
| IN83-EF | NAD83 Indiana State Planes- Eastern Zone- US Foot (EPSG #2244) |
| IN83-W | NAD83 Indiana State Planes- Western Zone- Meter (EPSG #26974) |
| IN83-WF | NAD83 Indiana State Planes- Western Zone- US Foot (EPSG #2245) |
| IN-E | NAD27 Indiana State Planes- Eastern Zone- US Foot (EPSG #26773) |
| INHP-E | HARN (HPGN) Indiana State Planes- Eastern Zone- Meter (EPSG #2792) |
| INHP-EF | HARN (HPGN) Indiana State Planes- Eastern Zone- US Foot (EPSG #2889) |
| INHP-W | HARN (HPGN) Indiana State Planes- Western Zone- Meter (EPSG #2793) |
| INHP-WF | HARN (HPGN) Indiana State Planes- Western Zone- US Foot (EPSG #2890) |
| IN-W | NAD27 Indiana State Planes- Western Zone- US Foot (EPSG #26774) |
| KS83-N | NAD83 Kansas State Planes- Northern Zone- Meter (EPSG #26977) |
| KS83-NF | NAD83 Kansas State Planes- Northern Zone- US Foot |
| KS83-S | NAD83 Kansas State Planes- Southern Zone- Meter (EPSG #26978) |
| KS83-SF | NAD83 Kansas State Planes- Southern Zone- US Foot |
| KSHP-N | HARN (HPGN) Kansas State Planes- Northern Zone- Meter (EPSG #2796) |
| KSHP-NF | HARN (HPGN) Kansas State Planes- Northern Zone- US Foot |
| KSHP-S | HARN (HPGN) Kansas State Planes- Southern Zone- Meter (EPSG #2797) |
| KSHP-SF | HARN (HPGN) Kansas State Planes- Southern Zone- US Foot |
| KS-N | NAD27 Kansas State Planes- Northern Zone- US Foot (EPSG #26777) |

| Value | Description |
|---|---|
| KS-S | NAD27 Kansas State Planes- Southern Zone- US Foot (EPSG #26778) |
| KY83-N | NAD83 Kentucky State Planes- Northern Zone- Meter (EPSG #26979) |
| KY83-NF | NAD83 Kentucky State Planes- Northern Zone- US Foot (EPSG #2246) |
| KY83-S | NAD83 Kentucky State Planes- Southern Zone- Meter (EPSG #26980) |
| KY83-SF | NAD83 Kentucky State Planes- Southern Zone- US Foot (EPSG #2247) |
| KYHP-N | HPGN Kentucky State Planes- Northern Zone- Meter (EPSG #2798) |
| KYHP-NF | HPGN Kentucky State Planes- Northern Zone- US Foot (EPSG #2891) |
| KYHP-S | HPGN Kentucky State Planes- Southern Zone- Meter (EPSG #2799) |
| KYHP-SF | HPGN Kentucky State Planes- Southern Zone- US Foot (EPSG #2892) |
| KY-N | NAD27 Kentucky State Planes- Northern Zone- US Foot (EPSG #26779) |
| KY-S | NAD27 Kentucky State Planes- Southern Zone- US Foot (EPSG #26780) |
| LA83-N | NAD83 Louisiana State Planes- Northern Zone- Meter (EPSG #26981) |
| LA83-NF | NAD83 Louisiana State Planes- Northern Zone- US Foot |
| LA83-O | NAD83 Louisiana State Planes- Offshore- Meter (EPSG #32199) |
| LA83-OF | NAD83 Louisiana State Planes- Offshore- US Foot |
| LA83-S | NAD83 Louisiana State Planes- Southern Zone- Meter (EPSG #26982) |
| LA83-SF | NAD83 Louisiana State Planes- Southern Zone- US Foot |
| LAHP-N | HPGN Louisiana State Planes- Northern Zone- Meter (EPSG #2800) |
| LAHP-NF | HPGN Louisiana State Planes- Northern Zone- US Foot |
| LAHP-O | HPGN Louisiana State Planes- Offshore- Meter |
| LAHP-OF | HPGN Louisiana State Planes- Offshore- US Foot |
| LAHP-S | HPGN Louisiana State Planes- Southern Zone- Meter (EPSG #2801) |
| LAHP-SF | HPGN Louisiana State Planes- Southern Zone- US Foot |
| LA-N | NAD27 Louisiana State Planes- Northern Zone- US Foot (EPSG #26781) |
| LA-O | NAD27 Louisiana State Planes- Offshore- US Foot (EPSG #32099) |
| LA-S | NAD27 Louisiana State Planes- Southern Zone- US Foot (EPSG #26782) |
| LL-83 | NAD83 Latitude/Longitude- Degrees |
| LL84 | WGS84 Lat/Long- Degrees- -180 ==> +180 (EPSG #4326) |
| MA | NAD27 Massachusetts State Planes- Mainland Zone- US Foot (EPSG #26786) |
| MA27-IS | NAD27 Massachusetts State Planes- Island Zone- US Foot (EPSG #26787) |
| MA83 | NAD83 Massachusetts State Planes- Mainland Zone- Meter (EPSG #26986) |
| MA83F | NAD83 Massachusetts State Planes- Mainland Zone- US Foot (EPSG #2249) |
| MA83-IS | NAD83 Massachusetts State Planes- Island Zone- Meter (EPSG #26987) |
| MA83-ISF | NAD83 Massachusetts State Planes- Island Zone- US Foot (EPSG #2250) |
| MAHP | HPGN/HARN Massachusetts State Planes- Mainland Zone- Meter (EPSG #2805) |
| MAHPF | HPGN/HARN Massachusetts State Planes- Mainland Zone- US Foot (EPSG #2894) |
| MAHP-IS | HPGN/HARN Massachusetts State Planes- Island Zone- Meter (EPSG #2806) |
| MAHP-ISF | HPGN/HARN Massachusetts State Planes- Island Zone- US Foot (EPSG #2895) |
| MD | NAD27 Maryland State Plane Zone- US Foot (EPSG #26785) |
| MD83 | NAD83 Maryland State Plane Zone- Meter (EPSG #26985) |
| MD83F | NAD83 Maryland State Plane Zone- US Foot (EPSG #2248) |
| MDHP | HPGN Maryland State Plane Zone- Meter (EPSG #2804) |
| MDHPF | HPGN Maryland State Plane Zone- US Foot (EPSG #2893) |

| Value | Description |
|---|---|
| ME83-E | NAD83 Maine State Planes- Eastern Zone- Meter (EPSG #26983) |
| ME83-EF | NAD83 Maine State Planes- Eastern Zone- US Foot |
| ME83-W | NAD83 Maine State Planes- Western Zone- Meter (EPSG #26984) |
| ME83-WF | NAD83 Maine State Planes- Western Zone- US Foot |
| ME-E | NAD27 Maine State Planes- Eastern Zone- US Foot (EPSG #26783) |
| MEHP-E | HPGN Maine State Planes- Eastern Zone- Meter (EPSG #2802) |
| MEHP-EF | HPGN Maine State Planes- Eastern Zone- US Foot |
| MEHP-W | HPGN Maine State Planes- Western Zone- Meter (EPSG #2803) |
| MEHP-WF | HPGN Maine State Planes- Western Zone- US Foot |
| ME-W | NAD27 Maine State Planes- Western Zone- US Foot (EPSG #26784) |
| MI27-C | NAD27 Michigan State Planes- Central Zone- US Foot (EPSG #26812) |
| MI27-N | NAD27 Michigan State Planes- Northern Zone- US Foot (EPSG #26811) |
| MI27-S | NAD27 Michigan State Planes- Southern Zone- US Foot (EPSG #26813) |
| MI83-C | NAD83 Michigan State Planes- Central Zone- Meter (EPSG #26989) |
| MI83-CF | NAD83 Michigan State Planes- Central Zone- US Foot |
| MI83-CIF | NAD83 Michigan State Planes- Central Zone- Intnl Foot (EPSG #2252) |
| MI83-N | NAD83 Michigan State Planes- Northern Zone- Meter (EPSG #26988) |
| MI83-NF | NAD83 Michigan State Planes- Northern Zone- US Foot |
| MI83-NIF | NAD83 Michigan State Planes- Northern Zone- Intnl Foot (EPSG #2251) |
| MI83-S | NAD83 Michigan State Planes- Southern Zone- Meter (EPSG #26990) |
| MI83-SF | NAD83 Michigan State Planes- Southern Zone- US Foot |
| MI83-SIF | NAD83 Michigan State Planes- Southern Zone- Intnl Foot (EPSG #2253) |
| MIHP-C | HARN (HPGN) Michigan State Planes- Central Zone- Meter (EPSG #2808) |
| MIHP-CF | HARN (HPGN) Michigan State Planes- Central Zone- US Foot |
| MIHP-CIF | HARN (HPGN) Michigan State Planes- Central Zone- Intnl Foot (EPSG #2897) |
| MIHP-N | HARN (HPGN) Michigan State Planes- Northern Zone- Meter (EPSG #2807) |
| MIHP-NF | HARN (HPGN) Michigan State Planes- Northern Zone- US Foot |
| MIHP-NIF | HARN (HPGN) Michigan State Planes- Northern Zone- Intnl Foot (EPSG #2896) |
| MIHP-S | HARN (HPGN) Michigan State Planes- Southern Zone- Meter (EPSG #2809) |
| MIHP-SF | HARN (HPGN) Michigan State Planes- Southern Zone- US Foot |
| MIHP-SIF | HARN (HPGN) Michigan State Planes- Southern Zone- Intnl Foot (EPSG #2898) |
| MN83-C | NAD83 Minnesota State Planes- Central Zone- Meter (EPSG #26992) |
| MN83-CF | NAD83 Minnesota State Planes- Central Zone- US Foot |
| MN83-N | NAD83 Minnesota State Planes- Northern Zone- Meter (EPSG #26991) |
| MN83-NF | NAD83 Minnesota State Planes- Northern Zone- US Foot |
| MN83-S | NAD83 Minnesota State Planes- South Zone- Meter (EPSG #26993) |
| MN83-SF | NAD83 Minnesota State Planes- South Zone- US Foot |
| MN-C | NAD27 Minnesota State Planes- Central Zone- US Foot (EPSG #26792) |
| MNHP-C | HARN (HPGN) Minnesota State Planes- Central Zone- Meter (EPSG #2811) |
| MNHP-CF | HARN (HPGN) Minnesota State Planes- Central Zone- US Foot |
| MNHP-N | HARN (HPGN) Minnesota State Planes- Northern Zone- Meter (EPSG #2810) |
| MNHP-NF | HARN (HPGN) Minnesota State Planes- Northern Zone- US Foot |
| MNHP-S | HARN (HPGN) Minnesota State Planes- South Zone- Meter (EPSG #2812) |
| MNHP-SF | HARN (HPGN) Minnesota State Planes- South Zone- US Foot |

| Value | Description |
|---|---|
| MN-N | NAD27 Minnesota State Planes- Northern Zone- US Foot (EPSG #26791) |
| MN-S | NAD27 Minnesota State Planes- South- US Foot (EPSG #26793) |
| MO83-C | NAD83 Missouri State Planes- Central Zone- Meter (EPSG #26997) |
| MO83-CF | NAD83 Missouri State Planes- Central Zone- US Foot |
| MO83-E | NAD83 Missouri State Planes- Eastern Zone- Meter (EPSG #26996) |
| MO83-EF | NAD83 Missouri State Planes- Eastern Zone- US Foot |
| MO83-W | NAD83 Missouri State Planes- Western Zone- Meter (EPSG #26998) |
| MO83-WF | NAD83 Missouri State Planes- Western Zone- US Foot |
| MO-C | NAD27 Missouri State Planes- Central Zone- US Foot (EPSG #26797) |
| MO-E | NAD27 Missouri State Planes- Eastern Zone- US Foot (EPSG #26796) |
| MOHP-C | HARN (HPGN) Missouri State Planes- Central Zone- Meter (EPSG #2816) |
| MOHP-CF | HARN (HPGN) Missouri State Planes- Central Zone- US Foot |
| MOHP-E | HARN (HPGN) Missouri State Planes- Eastern Zone- Meter (EPSG #2815) |
| MOHP-EF | HARN (HPGN) Missouri State Planes- Eastern Zone- US Foot |
| MOHP-W | HARN (HPGN) Missouri State Planes- Western Zone- Meter (EPSG #2817) |
| MOHP-WF | HARN (HPGN) Missouri State Planes- Western Zone- US Foot |
| MO-W | NAD27 Missouri State Planes- Western Zone- US Foot (EPSG #26798) |
| MS83-E | NAD83 Mississippi State Planes- Eastern Zone- Meter (EPSG #26994) |
| MS83-EF | NAD83 Mississippi State Planes- Eastern Zone- US Foot (EPSG #2254) |
| MS83-TM | NAD83 Mississippi Transverse Mercator Projection (meters) |
| MS83-W | NAD83 Mississippi State Planes- Western Zone- Meter (EPSG #26995) |
| MS83-WF | NAD83 Mississippi State Planes- Western Zone- US Foot (EPSG #2255) |
| MS-E | NAD27 Mississippi State Planes- Eastern Zone- US Foot (EPSG #26794) |
| MSHP-E | HPGN Mississippi State Planes- Eastern Zone- Meter (EPSG #2813) |
| MSHP-EF | HPGN Mississippi State Planes- Eastern Zone- US Foot (EPSG #2899) |
| MSHP-W | HPGN Mississippi State Planes- Western Zone- Meter (EPSG #2814) |
| MSHP-WF | HPGN Mississippi State Planes- Western Zone- US Foot (EPSG #2900) |
| MS-W | NAD27 Mississippi State Planes- Western Zone- US Foot (EPSG #26795) |
| MT83 | NAD83 Montana State Plane Zone- Meter (EPSG #32100) |
| MT83F | NAD83 Montana State Plane Zone- US Foot |
| MT83IF | NAD83 Montana State Planes- Intnl Foot (EPSG #2256) |
| MT-C | NAD27 Montana State Planes- Central Zone- US Foot (EPSG #32002) |
| MTHP | HPGN Montana State Plane Zone- Meter (EPSG #2818) |
| MTHPF | HPGN Montana State Plane Zone- US Foot |
| MTHPIF | HPGN Montana State Planes- Intnl Foot (EPSG #2901) |
| MT-N | NAD27 Montana State Planes- Northern Zone- US Foot (EPSG #32001) |
| MT-S | NAD27 Montana State Planes- Southern Zone- US Foot (EPSG #32003) |
| NB83 | NAD83 Nebraska State Planes- Meter (EPSG #32104) |
| NB83F | NAD83 Nebraska State Planes- US Foot |
| NBHP | HPGN/HARN Nebraska State Planes- Meter (EPSG #2819) |
| NBHPF | HPGN/HARN Nebraska State Planes- US Foot |
| NB-N | NAD27 Nebraska State Planes- Northern Zone- US Foot (EPSG #32005) |
| NB-S | NAD27 Nebraska State Planes- Southern Zone- US Foot (EPSG #32006) |
| NC | NAD27 North Carolina State Planes- US Foot (EPSG #32019) |
| NC83 | NAD83 North Carolina State Planes- Meter (EPSG #32119) |
| NC83F | NAD83 North Carolina State Planes- US Foot (EPSG #2264) |
| NCHP | HARN (HPGN) North Carolina State Planes- Meter |

| Value | Description |
|---|---|
| NCHPF | HARN (HPGN) North Carolina State Planes- US Foot |
| ND83-N | NAD83 North Dakota State Planes- Northern Zone- Meter (EPSG #32120) |
| ND83-NF | NAD83 North Dakota State Planes- Northern Zone- US Foot |
| ND83-S | NAD83 North Dakota State Planes- Southern Zone- Meter (EPSG #32121) |
| ND83-SF | NAD83 North Dakota State Planes- Southern Zone- US Foot |
| NDHP-N | HARN (HPGN) North Dakota State Planes- Northern Zone- Meter (EPSG #2832) |
| NDHP-NF | HARN (HPGN) North Dakota State Planes- Northern Zone- US Foot |
| NDHP-S | HARN (HPGN) North Dakota State Planes- Southern Zone- Meter (EPSG #2833) |
| NDHP-SF | HARN (HPGN) North Dakota State Planes- Southern Zone- US Foot |
| ND-N | NAD27 North Dakota State Planes- Northern Zone- US Foot (EPSG #32020) |
| ND-S | NAD27 North Dakota State Planes- Southern Zone- US Foot (EPSG #32021) |
| NE83 | NAD83 Nebraska State Planes- Meter |
| NE83F | NAD83 Nebraska State Planes- US Foot |
| NE-N | NAD27 Nebraska State Planes- Northern Zone- US Foot |
| NE-S | NAD27 Nebraska State Planes- Southern Zone- US Foot |
| NH | NAD27 New Hampshire State Planes- US Foot (EPSG #32010) |
| NH83 | NAD83 New Hampshire State Planes- Meter (EPSG #32110) |
| NH83F | NAD83 New Hampshire State Planes- US Foot |
| NHHP | HPGN/HARN New Hampshire State Planes- Meter (EPSG #2823) |
| NHHPF | HPGN/HARN New Hampshire State Planes- US Foot |
| NJ | NAD27 New Jersey State Planes- US Foot (EPSG #32011) |
| NJ83 | NAD83 New Jersey State Planes- Meter (EPSG #32111) |
| NJ83F | NAD83 New Jersey State Planes- US Foot |
| NJHP | HARN (HPGN) New Jersey State Planes- Meter (EPSG #2824) |
| NJHPF | HARN (HPGN) New Jersey State Planes- US Foot |
| NM83-C | NAD83 New Mexico State Planes- Central Zone- Meter (EPSG #32113) |
| NM83-CF | NAD83 New Mexico State Planes- Central Zone- US Foot (EPSG #2258) |
| NM83-E | NAD83 New Mexico State Planes- Eastern Zone- Meter (EPSG #32112) |
| NM83-EF | NAD83 New Mexico State Planes- Eastern Zone- US Foot (EPSG #2257) |
| NM83-W | NAD83 New Mexico State Planes- Western Zone- Meter (EPSG #32114) |
| NM83-WF | NAD83 New Mexico State Planes- Western Zone- US Foot (EPSG #2259) |
| NM-C | NAD27 New Mexico State Planes- Central Zone- US Foot (EPSG #32013) |
| NM-E | NAD27 New Mexico State Planes- Eastern Zone- US Foot (EPSG #32012) |
| NMHP-C | HPGN New Mexico State Planes- Central Zone- Meter (EPSG #2826) |
| NMHP-CF | HPGN New Mexico State Planes- Central Zone- US Foot (EPSG #2903) |
| NMHP-E | HPGN New Mexico State Planes- Eastern Zone- Meter (EPSG #2825) |
| NMHP-EF | HPGN New Mexico State Planes- Eastern Zone- US Foot (EPSG #2902) |
| NMHP-W | HPGN New Mexico State Planes- Western Zone- Meter (EPSG #2827) |
| NMHP-WF | HPGN New Mexico State Planes- Western Zone- US Foot (EPSG #2904) |
| NM-W | NAD27 New Mexico State Planes- Western Zone- US Foot (EPSG #32014) |
| NV83-C | NAD83 Nevada State Planes- Central Zone- Meter (EPSG #32108) |
| NV83-CF | NAD83 Nevada State Planes- Central Zone- US Foot |
| NV83-E | NAD83 Nevada State Planes- Eastern Zone- Meter (EPSG #32107) |
| NV83-EF | NAD83 Nevada State Planes- Eastern Zone- US Foot |
| NV83-W | NAD83 Nevada State Planes- Western Zone- Meter (EPSG #32109) |

| Value | Description |
|---|---|
| NV83-WF | NAD83 Nevada State Planes- Western Zone- US Foot |
| NV-C | NAD27 Nevada State Planes- Central Zone- US Foot (EPSG #32008) |
| NV-E | NAD27 Nevada State Planes- Eastern Zone- US Foot (EPSG #32007) |
| NVHP-C | HARN (HPGN) Nevada State Planes- Central Zone- Meter (EPSG #2821) |
| NVHP-CF | HARN (HPGN) Nevada State Planes- Central Zone- US Foot |
| NVHP-E | HARN (HPGN) Nevada State Planes- Eastern Zone- Meter (EPSG #2820) |
| NVHP-EF | HARN (HPGN) Nevada State Planes- Eastern Zone- US Foot |
| NVHP-W | HARN (HPGN) Nevada State Planes- Western Zone- Meter (EPSG #2822) |
| NVHP-WF | HARN (HPGN) Nevada State Planes- Western Zone- US Foot |
| NV-W | NAD27 Nevada State Planes- Western Zone- US Foot (EPSG #32009) |
| NY83-C | NAD83 New York State Planes- Central Zone- Meter (EPSG #32116) |
| NY83-CF | NAD83 New York State Planes- Central Zone- US Foot (EPSG #2261) |
| NY83-E | NAD83 New York State Planes- Eastern Zone- Meter (EPSG #32115) |
| NY83-EF | NAD83 New York State Planes- Eastern Zone- US Foot (EPSG #2260) |
| NY83-LI | NAD83 New York State Planes- Long Island- Meter (EPSG #32118) |
| NY83-LIF | NAD83 New York State Planes- Long Island- US Foot (EPSG #2263) |
| NY83-W | NAD83 New York State Planes- Western Zone- Meter (EPSG #32117) |
| NY83-WF | NAD83 New York State Planes- Western Zone- US Foot (EPSG #2262) |
| NY-C | NAD27 New York State Planes- Central Zone- US Foot (EPSG #32016) |
| NY-E | NAD27 New York State Planes- Eastern Zone- US Foot (EPSG #32015) |
| NYHP-C | HARN (HPGN) New York State Planes- Central Zone- Meter (EPSG #2829) |
| NYHP-CF | HARN (HPGN) New York State Planes- Central Zone- US Foot (EPSG #2906) |
| NYHP-E | HARN (HPGN) New York State Planes- Eastern Zone- Meter (EPSG #2828) |
| NYHP-EF | HARN (HPGN) New York State Planes- Eastern Zone- US Foot (EPSG #2905) |
| NYHP-LI | HARN (HPGN) New York State Planes- Long Island- Meter (EPSG #2831) |
| NYHP-LIF | HARN (HPGN) New York State Planes- Long Island- US Foot (EPSG #2908) |
| NYHP-W | HARN (HPGN) New York State Planes- Western Zone- Meter (EPSG #2830) |
| NYHP-WF | HARN (HPGN) New York State Planes- Western Zone- US Foot (EPSG #2907) |
| NY-LI | NAD27 New York State Planes- Long Island- US Foot (EPSG #32018) |
| NY-W | NAD27 New York State Planes- Western Zone- US Foot (EPSG #32017) |
| OH83-N | NAD83 Ohio State Planes- Northern Zone- Meter (EPSG #32122) |
| OH83-NF | NAD83 Ohio State Planes- Northern Zone- US Foot |
| OH83-S | NAD83 Ohio State Planes- Southern Zone- Meter (EPSG #32123) |
| OH83-SF | NAD83 Ohio State Planes- Southern Zone- US Foot |
| OHHP-N | HARN (HPGN) Ohio State Planes- Northern Zone- Meter (EPSG #2834) |
| OHHP-NF | HARN (HPGN) Ohio State Planes- Northern Zone- US Foot |
| OHHP-S | HARN (HPGN) Ohio State Planes- Southern Zone- Meter (EPSG #2835) |
| OHHP-SF | HARN (HPGN) Ohio State Planes- Southern Zone- US Foot |
| OH-N | NAD27 Ohio State Planes- Northern Zone- US Foot (EPSG #32022) |
| OH-S | NAD27 Ohio State Planes- Southern Zone- US Foot (EPSG #32023) |
| OK83-N | NAD83 Oklahoma State Planes- Northern Zone- Meter (EPSG #32124) |
| OK83-NF | NAD83 Oklahoma State Planes- Northern Zone- US Foot (EPSG #2267) |
| OK83-S | NAD83 Oklahoma State Planes- Southern Zone- Meter (EPSG #32125) |
| OK83-SF | NAD83 Oklahoma State Planes- Southern Zone- US Foot (EPSG #2268) |

| Value | Description |
|---|---|
| OKHP-N | HPGN Oklahoma State Planes- Northern Zone- Meter (EPSG #2836) |
| OKHP-NF | HPGN Oklahoma State Planes- Northern Zone- US Foot (EPSG #2911) |
| OKHP-S | HPGN Oklahoma State Planes- Southern Zone- Meter (EPSG #2837) |
| OKHP-SF | HPGN Oklahoma State Planes- Southern Zone- US Foot (EPSG #2912) |
| OK-N | NAD27 Oklahoma State Planes- Northern Zone- US Foot (EPSG #32024) |
| OK-S | NAD27 Oklahoma State Planes- Southern Zone- US Foot (EPSG #32025) |
| OR83-N | NAD83 Oregon State Planes- Northern Zone- Meter (EPSG #32126) |
| OR83-NF | NAD83 Oregon State Planes- Northern Zone- US Foot |
| OR83-NIF | NAD83 Oregon State Planes- Northern Zone- Intnl Foot (EPSG #2269) |
| OR83-S | NAD83 Oregon State Planes- Southern Zone- Meter (EPSG #32127) |
| OR83-SF | NAD83 Oregon State Planes- Southern Zone- US Foot |
| OR83-SIF | NAD83 Oregon State Planes- Southern Zone- Intnl Foot (EPSG #2270) |
| OR83-SSCGIS | NAD83 Oregon GIS- International Foot (EPSG #2992) |
| ORHP-N | HPGN Oregon State Planes- Northern Zone- Meter (EPSG #2838) |
| ORHP-NF | HPGN Oregon State Planes- Northern Zone- US Foot |
| ORHP-NIF | HPGN Oregon State Planes- Northern Zone- Intnl Foot (EPSG #2913) |
| ORHP-S | HPGN Oregon State Planes- Southern Zone- Meter (EPSG #2839) |
| ORHP-SF | HPGN Oregon State Planes- Southern Zone- US Foot |
| ORHP-SIF | HPGN Oregon State Planes- Southern Zone- Intnl Foot (EPSG #2914) |
| OR-N | NAD27 Oregon State Planes- Northern Zone- US Foot (EPSG #32026) |
| OR-S | NAD27 Oregon State Planes- Southern Zone- US Foot (EPSG #32027) |
| PA83-N | NAD83 Pennsylvania State Planes- Northern Zone- Meter (EPSG #32128) |
| PA83-NF | NAD83 Pennsylvania State Planes- Northern Zone- US Foot (EPSG #2271) |
| PA83-S | NAD83 Pennsylvania State Planes- Southern Zone- Meter (EPSG #32129) |
| PA83-SF | NAD83 Pennsylvania State Planes- Southern Zone- US Foot (EPSG #2272) |
| PAHP-N | HARN (HPGN) Pennsylvania State Planes- Northern Zone- Meter |
| PAHP-NF | HARN (HPGN) Pennsylvania State Planes- Northern Zone- US Foot |
| PAHP-S | HARN (HPGN) Pennsylvania State Planes- Southern Zone- Meter |
| PAHP-SF | HARN (HPGN) Pennsylvania State Planes- Southern Zone- US Foot |
| PA-N | NAD27 Pennsylvania State Planes- Northern Zone- US Foot (EPSG #32028) |
| PA-S | NAD27 Pennsylvania State Planes- Southern Zone- US Foot (EPSG #32029) |
| PR-1 | NAD27 Puerto Rico and Virgin Islands- Zone 1- US Foot |
| PR-2 | NAD27 Puerto Rico- St Croix Virgin Island- Zone 2- US Foot |
| PR83 | NAD83 Puerto Rico and Virgin Islands- Meter (EPSG #32161) |
| PR83F | NAD83 Puerto Rico and Virgin Islands- US Foot |
| PRHP | HPGN Puerto Rico and Virgin Islands- Meter (EPSG #2866) |
| PRHPF | HPGN Puerto Rico and Virgin Islands- US Foot |
| RI | NAD27 Rhode Island State Planes- US Foot (EPSG #32030) |
| RI83 | NAD83 Rhode Island State Planes- Meter (EPSG #32130) |
| RI83F | NAD83 Rhode Island State Planes- US Foot |
| RIHP | HPGN/HARN Rhode Island State Planes- Meter (EPSG #2840) |
| RIHPF | HPGN/HARN Rhode Island State Planes- US Foot |
| SC83 | NAD83 South Carolina State Planes- Meter (EPSG #32133) |
| SC83F | NAD83 South Carolina State Planes- US Foot |
| SC83IF | NAD83 South Carolina State Planes- Intnl Foot (EPSG #2273) |
| SCHP | HARN (HPGN) South Carolina State Planes- Meter |

| Value | Description |
|---|---|
| SCHPF | HARN (HPGN) South Carolina State Planes- US Foot |
| SCHPIF | HARN (HPGN) South Carolina State Planes- Intnl Foot |
| SC-N | NAD27 South Carolina State Planes- Northern Zone- US Foot (EPSG #32031) |
| SC-S | NAD27 South Carolina State Planes- Southern Zone- US Foot (EPSG #32033) |
| SD83-N | NAD83 South Dakota State Planes- Northern Zone- Meter (EPSG #32134) |
| SD83-NF | NAD83 South Dakota State Planes- Northern Zone- US Foot |
| SD83-S | NAD83 South Dakota State Planes- Southern Zone- Meter (EPSG #32135) |
| SD83-SF | NAD83 South Dakota State Planes- Southern Zone- US Foot |
| SDHP-N | HARN (HPGN) South Dakota State Planes- Northern Zone- Meter (EPSG #2841) |
| SDHP-NF | HARN (HPGN) South Dakota State Planes- Northern Zone- US Foot |
| SDHP-S | HARN (HPGN) South Dakota State Planes- Southern Zone- Meter (EPSG #2842) |
| SDHP-SF | HARN (HPGN) South Dakota State Planes- Southern Zone- US Foot |
| SD-N | NAD27 South Dakota State Planes- Northern Zone- US Foot (EPSG #32034) |
| SD-S | NAD27 South Dakota State Planes- Southern Zone- US Foot (EPSG #32035) |
| TN | NAD27 Tennessee State Plane Zone- US Foot (EPSG #2204) |
| TN83 | NAD83 Tennessee State Plane Zone- Meter (EPSG #32136) |
| TN83F | NAD83 Tennessee State Plane Zone- US Foot (EPSG #2274) |
| TNHP | HPGN Tennessee State Plane Zone- Meter (EPSG #2843) |
| TNHPF | HPGN Tennessee State Plane Zone- US Foot (EPSG #2915) |
| TX83-C | NAD83 Texas State Planes- Central Zone- Meter (EPSG #32139) |
| TX83-CF | NAD83 Texas State Planes- Central Zone- US Foot (EPSG #2277) |
| TX83-N | NAD83 Texas State Planes- Northern Zone- Meter (EPSG #32137) |
| TX83-NC | NAD83 Texas State Planes- North Central Zone- Meter (EPSG #32138) |
| TX83-NCF | NAD83 Texas State Planes- North Central Zone- US Foot (EPSG #2276) |
| TX83-NF | NAD83 Texas State Planes- Northern Zone- US Foot (EPSG #2275) |
| TX83-S | NAD83 Texas State Planes- Southern Zone- Meter (EPSG #32141) |
| TX83-SC | NAD83 Texas State Planes- South Central Zone- Meter (EPSG #32140) |
| TX83-SCF | NAD83 Texas State Planes- South Central Zone- US Foot (EPSG #2278) |
| TX83-SF | NAD83 Texas State Planes- Southern Zone- US Foot (EPSG #2279) |
| TX-C | NAD27 Texas State Planes- Central Zone- US Foot (EPSG #32039) |
| TXHP-C | HPGN/HARN Texas State Planes- Central Zone- Meter (EPSG #2846) |
| TXHP-CF | HPGN/HARN Texas State Planes- Central Zone- US Foot (EPSG #2918) |
| TXHP-N | HPGN/HARN Texas State Planes- Northern Zone- Meter (EPSG #2844) |
| TXHP-NC | HPGN/HARN Texas State Planes- North Central Zone- Meter (EPSG #2845) |
| TXHP-NCF | HPGN/HARN Texas State Planes- North Central Zone- US Foot (EPSG #2917) |
| TXHP-NF | HPGN/HARN Texas State Planes- Northern Zone- US Foot (EPSG #2916) |
| TXHP-S | HPGN/HARN Texas State Planes- Southern Zone- Meter (EPSG #2848) |
| TXHP-SC | HPGN/HARN Texas State Planes- South Central Zone- Meter (EPSG #2847) |
| TXHP-SCF | HPGN/HARN Texas State Planes- South Central Zone- US Foot (EPSG #2919) |
| TXHP-SF | HPGN/HARN Texas State Planes- Southern Zone- US Foot (EPSG #2920) |
| TX-N | NAD27 Texas State Planes- Northern Zone- US Foot (EPSG #32037) |
| TX-NC | NAD27 Texas State Planes- North Central Zone- US Foot (EPSG #32038) |

| Value | Description |
|---|---|
| TX-S | NAD27 Texas State Planes- Southern Zone- US Foot (EPSG #32041) |
| TX-SC | NAD27 Texas State Planes- South Central Zone- US Foot (EPSG #32040) |
| UT83-C | NAD83 Utah State Planes- Central Zone- Meter (EPSG #32143) |
| UT83-CF | NAD83 Utah State Planes- Central Zone- US Foot |
| UT83-CIF | NAD83 Utah State Planes- Central Zone- Intnl Foot (EPSG #2281) |
| UT83-N | NAD83 Utah State Planes- Northern Zone- Meter (EPSG #32142) |
| UT83-NF | NAD83 Utah State Planes- Northern Zone- US Foot |
| UT83-NIF | NAD83 Utah State Planes- Northern Zone- Intnl Foot (EPSG #2280) |
| UT83-S | NAD83 Utah State Planes- Southern Zone- Meter (EPSG #32144) |
| UT83-SF | NAD83 Utah State Planes- Southern Zone- US Foot |
| UT83-SIF | NAD83 Utah State Planes- Southern Zone- Intnl Foot (EPSG #2282) |
| UT-C | NAD27 Utah State Planes- Central Zone- US Foot (EPSG #32043) |
| UTHP-C | HARN (HPGN) Utah State Planes- Central Zone- Meter (EPSG #2850) |
| UTHP-CF | HARN (HPGN) Utah State Planes- Central Zone- US Foot |
| UTHP-CIF | HARN (HPGN) Utah State Planes- Central Zone- Intnl Foot (EPSG #2922) |
| UTHP-N | HARN (HPGN) Utah State Planes- Northern Zone- Meter (EPSG #2849) |
| UTHP-NF | HARN (HPGN) Utah State Planes- Northern Zone- US Foot |
| UTHP-NIF | HARN (HPGN) Utah State Planes- Northern Zone- Intnl Foot (EPSG #2921) |
| UTHP-S | HARN (HPGN) Utah State Planes- Southern Zone- Meter (EPSG #2851) |
| UTHP-SF | HARN (HPGN) Utah State Planes- Southern Zone- US Foot |
| UTHP-SIF | HARN (HPGN) Utah State Planes- Southern Zone- Intnl Foot (EPSG #2923) |
| UTM27-1 | NAD27 UTM- Zone 1 North- Meter |
| UTM27-10 | NAD27 UTM- Zone 10 North- Meter (EPSG #26710) |
| UTM27-10F | NAD27 UTM- Zone 10 North- US Foot |
| UTM27-10IF | NAD27 UTM- Zone 10 North- Intnl Foot |
| UTM27-11 | NAD27 UTM- Zone 11 North- Meter (EPSG #26711) |
| UTM27-11F | NAD27 UTM- Zone 11 North- US Foot |
| UTM27-11IF | NAD27 UTM- Zone 11 North- Intnl Foot |
| UTM27-12 | NAD27 UTM- Zone 12 North- Meter (EPSG #26712) |
| UTM27-12F | NAD27 UTM- Zone 12 North- US Foot |
| UTM27-12IF | NAD27 UTM- Zone 12 North- Intnl Foot |
| UTM27-13 | NAD27 UTM- Zone 13 North- Meter (EPSG #26713) |
| UTM27-13F | NAD27 UTM- Zone 13 North- US Foot |
| UTM27-13IF | NAD27 UTM- Zone 13 North- Intnl Foot |
| UTM27-14 | NAD27 UTM- Zone 14 North- Meter (EPSG #26714) |
| UTM27-14F | NAD27 UTM- Zone 14 North- US Foot |
| UTM27-14IF | NAD27 UTM- Zone 14 North- Intnl Foot |
| UTM27-15 | NAD27 UTM- Zone 15 North- Meter (EPSG #26715) |
| UTM27-15F | NAD27 UTM- Zone 15 North- US Foot |
| UTM27-15IF | NAD27 UTM- Zone 15 North- Intnl Foot |
| UTM27-16 | NAD27 UTM- Zone 16 North- Meter (EPSG #26716) |
| UTM27-16F | NAD27 UTM- Zone 16 North- US Foot |
| UTM27-16IF | NAD27 UTM- Zone 16 North- Intnl Foot |
| UTM27-17 | NAD27 UTM- Zone 17 North- Meter (EPSG #26717) |
| UTM27-17F | NAD27 UTM- Zone 17 North- US Foot |
| UTM27-17IF | NAD27 UTM- Zone 17 North- Intnl Foot |
| UTM27-18 | NAD27 UTM- Zone 18 North- Meter (EPSG #26718) |

| Value | Description |
|---|---|
| UTM27-18F | NAD27 UTM- Zone 18 North- US Foot |
| UTM27-18IF | NAD27 UTM- Zone 18 North- Intnl Foot |
| UTM27-19 | NAD27 UTM- Zone 19 North- Meter (EPSG #26719) |
| UTM27-19F | NAD27 UTM- Zone 19 North- US Foot |
| UTM27-19IF | NAD27 UTM- Zone 19 North- Intnl Foot |
| UTM27-1N | NAD27 / UTM zone 1N (EPSG #26701) |
| UTM27-2 | NAD27 UTM- Zone 2 North- Meter |
| UTM27-20 | NAD27 UTM- Zone 20 North- Meter (EPSG #26720) |
| UTM27-20F | NAD27 UTM- Zone 20 North- US Foot |
| UTM27-20IF | NAD27 UTM- Zone 20 North- Intnl Foot |
| UTM27-21 | NAD27 UTM- Zone 21 North- Meter (EPSG #26721) |
| UTM27-21F | NAD27 UTM- Zone 21 North- US Foot |
| UTM27-21IF | NAD27 UTM- Zone 21 North- Intnl Foot |
| UTM27-22 | NAD27 UTM- Zone 22 North- Meter (EPSG #26722) |
| UTM27-22F | NAD27 UTM- Zone 22 North- US Foot |
| UTM27-22IF | NAD27 UTM- Zone 22 North- Intnl Foot |
| UTM27-23 | NAD27 UTM- Zone 23 North- Meter |
| UTM27-23F | NAD27 UTM- Zone 23 North- US Foot |
| UTM27-23IF | NAD27 UTM- Zone 23 North- Intnl Foot |
| UTM27-2N | NAD27 / UTM zone 2N (EPSG #26702) |
| UTM27-3 | NAD27 UTM- Zone 3 North- Meter (EPSG #26703) |
| UTM27-3F | NAD27 UTM- Zone 3 North- US Survey Foot |
| UTM27-3IF | NAD27 UTM- Zone 3 North- Intnl Foot |
| UTM27-4 | NAD27 UTM- Zone 4 North- Meter (EPSG #26704) |
| UTM27-4F | NAD27 UTM- Zone 4 North- US Survey Foot |
| UTM27-4IF | NAD27 UTM- Zone 4 North- Intnl Foot |
| UTM27-5 | NAD27 UTM- Zone 5 North- Meter (EPSG #26705) |
| UTM27-58 | NAD27 UTM- Zone 58 North- Meter |
| UTM27-59 | NAD27 UTM- Zone 59 North- Meter |
| UTM27-5F | NAD27 UTM- Zone 5 North- US Foot |
| UTM27-5IF | NAD27 UTM- Zone 5 North- Intnl Foot |
| UTM27-6 | NAD27 UTM- Zone 6 North- Meter (EPSG #26706) |
| UTM27-60 | NAD27 UTM- Zone 60 North- Meter |
| UTM27-6F | NAD27 UTM- Zone 6 North- US Foot |
| UTM27-6IF | NAD27 UTM- Zone 6 North- Intnl Foot |
| UTM27-7 | NAD27 UTM- Zone 7 North- Meter (EPSG #26707) |
| UTM27-7F | NAD27 UTM- Zone 7 North- US Foot |
| UTM27-7IF | NAD27 UTM- Zone 7 North- Intnl Foot |
| UTM27-8 | NAD27 UTM- Zone 8 North- Meter (EPSG #26708) |
| UTM27-8F | NAD27 UTM- Zone 8 North- US Foot |
| UTM27-8IF | NAD27 UTM- Zone 8 North- Intnl Foot |
| UTM27-9 | NAD27 UTM- Zone 9 North- Meter (EPSG #26709) |
| UTM27-9F | NAD27 UTM- Zone 9 North- US Foot |
| UTM27-9IF | NAD27 UTM- Zone 9 North- Intnl Foot |
| UTM83-1 | NAD83 UTM- Zone 1 North- Meter (EPSG #26901) |
| UTM83-10 | NAD83 UTM- Zone 10 North- Meter (EPSG #26910) |
| UTM83-10F | NAD83 UTM- Zone 10 North- US Foot |

| Value | Description |
|---|---|
| UTM83-10IF | NAD83 UTM- Zone 10 North- Intnl Foot |
| UTM83-11 | NAD83 UTM- Zone 11 North- Meter (EPSG #26911) |
| UTM83-11F | NAD83 UTM- Zone 11 North- US Foot |
| UTM83-11IF | NAD83 UTM- Zone 11 North- Intnl Foot |
| UTM83-12 | NAD83 UTM- Zone 12 North- Meter (EPSG #26912) |
| UTM83-12F | NAD83 UTM- Zone 12 North- US Foot |
| UTM83-12IF | NAD83 UTM- Zone 12 North- Intnl Foot |
| UTM83-13 | NAD83 UTM- Zone 13 North- Meter (EPSG #26913) |
| UTM83-13F | NAD83 UTM- Zone 13 North- US Foot |
| UTM83-13IF | NAD83 UTM- Zone 13 North- Intnl Foot |
| UTM83-14 | NAD83 UTM- Zone 14 North- Meter (EPSG #26914) |
| UTM83-14F | NAD83 UTM- Zone 14 North- US Foot |
| UTM83-14IF | NAD83 UTM- Zone 14 North- Intnl Foot |
| UTM83-15 | NAD83 UTM- Zone 15 North- Meter (EPSG #26915) |
| UTM83-15F | NAD83 UTM- Zone 15 North- US Foot |
| UTM83-15IF | NAD83 UTM- Zone 15 North- Intnl Foot |
| UTM83-16 | NAD83 UTM- Zone 16 North- Meter (EPSG #26916) |
| UTM83-16F | NAD83 UTM- Zone 16 North- US Foot |
| UTM83-16IF | NAD83 UTM- Zone 16 North- Intnl Foot |
| UTM83-17 | NAD83 UTM- Zone 17 North- Meter (EPSG #26917) |
| UTM83-17F | NAD83 UTM- Zone 17 North- US Foot |
| UTM83-17IF | NAD83 UTM- Zone 17 North- Intnl Foot |
| UTM83-18 | NAD83 UTM- Zone 18 North- Meter (EPSG #26918) |
| UTM83-18F | NAD83 UTM- Zone 18 North- US Foot |
| UTM83-18IF | NAD83 UTM- Zone 18 North- Intnl Foot |
| UTM83-19 | NAD83 UTM- Zone 19 North- Meter (EPSG #26919) |
| UTM83-19F | NAD83 UTM- Zone 19 North- US Foot |
| UTM83-19IF | NAD83 UTM- Zone 19 North- Intnl Foot |
| UTM83-2 | NAD83 UTM- Zone 2 North- Meter (EPSG #26902) |
| UTM83-20 | NAD83 UTM- Zone 20 North- Meter (EPSG #26920) |
| UTM83-20F | NAD83 UTM- Zone 20 North- US Foot |
| UTM83-20IF | NAD83 UTM- Zone 20 North- Intnl Foot |
| UTM83-21 | NAD83 UTM- Zone 21 North- Meter (EPSG #26921) |
| UTM83-21F | NAD83 UTM- Zone 21 North- US Foot |
| UTM83-21IF | NAD83 UTM- Zone 21 North- Intnl Foot |
| UTM83-22 | NAD83 UTM- Zone 22 North- Meter (EPSG #26922) |
| UTM83-22F | NAD83 UTM- Zone 22 North- US Foot |
| UTM83-22IF | NAD83 UTM- Zone 22 North- Intnl Foot |
| UTM83-23 | NAD83 Universal Transverse Mercator- Zone 23 North- Meter |
| UTM83-3 | NAD83 UTM- Zone 3 North- Meter (EPSG #26903) |
| UTM83-3F | NAD83 UTM- Zone 3 North- US Survey Foot |
| UTM83-4 | NAD83 UTM- Zone 4 North- Meter (EPSG #26904) |
| UTM83-4F | NAD83 UTM- Zone 4 North- US Survey Foot |
| UTM83-5 | NAD83 UTM- Zone 5 North- Meter (EPSG #26905) |
| UTM83-58 | NAD83 UTM- Zone 58 North- Meter |
| UTM83-59 | NAD83 UTM- Zone 59 North- Meter |
| UTM83-5F | NAD83 UTM- Zone 5 North- US Survey Foot |

| Value | Description |
|---|---|
| UTM83-5IF | NAD83 UTM- Zone 5 North- Intnl Foot |
| UTM83-6 | NAD83 UTM- Zone 6 North- Meter (EPSG #26906) |
| UTM83-60 | NAD83 UTM- Zone 60 North- Meter |
| UTM83-6F | NAD83 UTM- Zone 6 North- US Foot |
| UTM83-6IF | NAD83 UTM- Zone 6 North- Intnl Foot |
| UTM83-7 | NAD83 UTM- Zone 7 North- Meter (EPSG #26907) |
| UTM83-7F | NAD83 UTM- Zone 7 North- US Foot |
| UTM83-7IF | NAD83 UTM- Zone 7 North- Intnl Foot |
| UTM83-8 | NAD83 UTM- Zone 8 North- Meter (EPSG #26908) |
| UTM83-8F | NAD83 UTM- Zone 8 North- US Foot |
| UTM83-8IF | NAD83 UTM- Zone 8 North- Intnl Foot |
| UTM83-9 | NAD83 UTM- Zone 9 North- Meter (EPSG #26909) |
| UTM83-9F | NAD83 UTM- Zone 9 North- US Foot |
| UTM83-9IF | NAD83 UTM- Zone 9 North- Intnl Foot |
| UTM84-10N | WGS 1984 UTM- Zone 10 North- Meter (EPSG #32610) |
| UTM84-10S | WGS 1984 UTM- Zone 10 South- Meter (EPSG #32710) |
| UTM84-11N | WGS 1984 UTM- Zone 11 North- Meter (EPSG #32611) |
| UTM84-11S | WGS 1984 UTM- Zone 11 South- Meter (EPSG #32711) |
| UTM84-12N | WGS 1984 UTM- Zone 12 North- Meter (EPSG #32612) |
| UTM84-12S | WGS 1984 UTM- Zone 12 South- Meter (EPSG #32712) |
| UTM84-13N | WGS 1984 UTM- Zone 13 North- Meter (EPSG #32613) |
| UTM84-13S | WGS 1984 UTM- Zone 13 South- Meter (EPSG #32713) |
| UTM84-14N | WGS 1984 UTM- Zone 14 North- Meter (EPSG #32614) |
| UTM84-14S | WGS 1984 UTM- Zone 14 South- Meter (EPSG #32714) |
| UTM84-15N | WGS 1984 UTM- Zone 15 North- Meter (EPSG #32615) |
| UTM84-15S | WGS 1984 UTM- Zone 15 South- Meter (EPSG #32715) |
| UTM84-16N | WGS 1984 UTM- Zone 16 North- Meter (EPSG #32616) |
| UTM84-16S | WGS 1984 UTM- Zone 16 South- Meter (EPSG #32716) |
| UTM84-17N | WGS 1984 UTM- Zone 17 North- Meter (EPSG #32617) |
| UTM84-17S | WGS 1984 UTM- Zone 17 South- Meter (EPSG #32717) |
| UTM84-18N | WGS 1984 UTM- Zone 18 North- Meter (EPSG #32618) |
| UTM84-18S | WGS 1984 UTM- Zone 18 South- Meter (EPSG #32718) |
| UTM84-19N | WGS 1984 UTM- Zone 19 North- Meter (EPSG #32619) |
| UTM84-19S | WGS 1984 UTM- Zone 19 South- Meter (EPSG #32719) |
| UTM84-1N | WGS 1984 UTM- Zone 1 North- Meter (EPSG #32601) |
| UTM84-1S | WGS 1984 UTM- Zone 1 South- Meter (EPSG #32701) |
| UTM84-20N | WGS 1984 UTM- Zone 20 North- Meter (EPSG #32620) |
| UTM84-20S | WGS 1984 UTM- Zone 20 South- Meter (EPSG #32720) |
| UTM84-21N | WGS 1984 UTM- Zone 21 North- Meter (EPSG #32621) |
| UTM84-21S | WGS 1984 UTM- Zone 21 South- Meter (EPSG #32721) |
| UTM84-22N | WGS 1984 UTM- Zone 22 North- Meter (EPSG #32622) |
| UTM84-22S | WGS 1984 UTM- Zone 22 South- Meter (EPSG #32722) |
| UTM84-23N | WGS 1984 UTM- Zone 23 North- Meter (EPSG #32623) |
| UTM84-23S | WGS 1984 UTM- Zone 23 South- Meter (EPSG #32723) |
| UTM84-24N | WGS 1984 UTM- Zone 24 North- Meter (EPSG #32624) |
| UTM84-24S | WGS 1984 UTM- Zone 24 South- Meter (EPSG #32724) |
| UTM84-25N | WGS 1984 UTM- Zone 25 North- Meter (EPSG #32625) |

| Value | Description |
|---|---|
| UTM84-25S | WGS 1984 UTM- Zone 25 South- Meter (EPSG #32725) |
| UTM84-26N | WGS 1984 UTM- Zone 26 North- Meter (EPSG #32626) |
| UTM84-26S | WGS 1984 UTM- Zone 26 South- Meter (EPSG #32726) |
| UTM84-27N | WGS 1984 UTM- Zone 27 North- Meter (EPSG #32627) |
| UTM84-27S | WGS 1984 UTM- Zone 27 South- Meter (EPSG #32727) |
| UTM84-28N | WGS 1984 UTM- Zone 28 North- Meter (EPSG #32628) |
| UTM84-28S | WGS 1984 UTM- Zone 28 South- Meter (EPSG #32728) |
| UTM84-29N | WGS 1984 UTM- Zone 29 North- Meter (EPSG #32629) |
| UTM84-29S | WGS 1984 UTM- Zone 29 South- Meter (EPSG #32729) |
| UTM84-2N | WGS 1984 UTM- Zone 2 North- Meter (EPSG #32602) |
| UTM84-2S | WGS 1984 UTM- Zone 2 South- Meter (EPSG #32702) |
| UTM84-30N | WGS 1984 UTM- Zone 30 North- Meter (EPSG #32630) |
| UTM84-30S | WGS 1984 UTM- Zone 30 South- Meter (EPSG #32730) |
| UTM84-31N | WGS 1984 UTM- Zone 31 North- Meter (EPSG #32631) |
| UTM84-31S | WGS 1984 UTM- Zone 31 South- Meter (EPSG #32731) |
| UTM84-32N | WGS 1984 UTM- Zone 32 North- Meter (EPSG #32632) |
| UTM84-32S | WGS 1984 UTM- Zone 32 South- Meter (EPSG #32732) |
| UTM84-33N | WGS 1984 UTM- Zone 33 North- Meter (EPSG #32633) |
| UTM84-33S | WGS 1984 UTM- Zone 33 South- Meter (EPSG #32733) |
| UTM84-34N | WGS 1984 UTM- Zone 34 North- Meter (EPSG #32634) |
| UTM84-34S | WGS 1984 UTM- Zone 34 South- Meter (EPSG #32734) |
| UTM84-35N | WGS 1984 UTM- Zone 35 North- Meter (EPSG #32635) |
| UTM84-35S | WGS 1984 UTM- Zone 35 South- Meter (EPSG #32735) |
| UTM84-36N | WGS 1984 UTM- Zone 36 North- Meter (EPSG #32636) |
| UTM84-36S | WGS 1984 UTM- Zone 36 South- Meter (EPSG #32736) |
| UTM84-37N | WGS 1984 UTM- Zone 37 North- Meter (EPSG #32637) |
| UTM84-37S | WGS 1984 UTM- Zone 37 South- Meter (EPSG #32737) |
| UTM84-38N | WGS 1984 UTM- Zone 38 North- Meter (EPSG #32638) |
| UTM84-38S | WGS 1984 UTM- Zone 38 South- Meter (EPSG #32738) |
| UTM84-39N | WGS 1984 UTM- Zone 39 North- Meter (EPSG #32639) |
| UTM84-39S | WGS 1984 UTM- Zone 39 South- Meter (EPSG #32739) |
| UTM84-3N | WGS 1984 UTM- Zone 3 North- Meter (EPSG #32603) |
| UTM84-3S | WGS 1984 UTM- Zone 3 South- Meter (EPSG #32703) |
| UTM84-40N | WGS 1984 UTM- Zone 40 North- Meter (EPSG #32640) |
| UTM84-40S | WGS 1984 UTM- Zone 40 South- Meter (EPSG #32740) |
| UTM84-41N | WGS 1984 UTM- Zone 41 North- Meter (EPSG #32641) |
| UTM84-41S | WGS 1984 UTM- Zone 41 South- Meter (EPSG #32741) |
| UTM84-42N | WGS 1984 UTM- Zone 42 North- Meter (EPSG #32642) |
| UTM84-42S | WGS 1984 UTM- Zone 42 South- Meter (EPSG #32742) |
| UTM84-43N | WGS 1984 UTM- Zone 43 North- Meter (EPSG #32643) |
| UTM84-43S | WGS 1984 UTM- Zone 43 South- Meter (EPSG #32743) |
| UTM84-44N | WGS 1984 UTM- Zone 44 North- Meter (EPSG #32644) |
| UTM84-44S | WGS 1984 UTM- Zone 44 South- Meter (EPSG #32744) |
| UTM84-45N | WGS 1984 UTM- Zone 45 North- Meter (EPSG #32645) |
| UTM84-45S | WGS 1984 UTM- Zone 45 South- Meter (EPSG #32745) |
| UTM84-46N | WGS 1984 UTM- Zone 46 North- Meter (EPSG #32646) |
| UTM84-46S | WGS 1984 UTM- Zone 46 South- Meter (EPSG #32746) |

| Value | Description |
|---|---|
| UTM84-47N | WGS 1984 UTM- Zone 47 North- Meter (EPSG #32647) |
| UTM84-47S | WGS 1984 UTM- Zone 47 South- Meter (EPSG #32747) |
| UTM84-48N | WGS 1984 UTM- Zone 48 North- Meter (EPSG #32648) |
| UTM84-48S | WGS 1984 UTM- Zone 48 South- Meter (EPSG #32748) |
| UTM84-49N | WGS 1984 UTM- Zone 49 North- Meter (EPSG #32649) |
| UTM84-49S | WGS 1984 UTM- Zone 49 South- Meter (EPSG #32749) |
| UTM84-4N | WGS 1984 UTM- Zone 4 North- Meter (EPSG #32604) |
| UTM84-4S | WGS 1984 UTM- Zone 4 South- Meter (EPSG #32704) |
| UTM84-50N | WGS 1984 UTM- Zone 50 North- Meter (EPSG #32650) |
| UTM84-50S | WGS 1984 UTM- Zone 50 South- Meter (EPSG #32750) |
| UTM84-51N | WGS 1984 UTM- Zone 51 North- Meter (EPSG #32651) |
| UTM84-51S | WGS 1984 UTM- Zone 51 South- Meter (EPSG #32751) |
| UTM84-52N | WGS 1984 UTM- Zone 52 North- Meter (EPSG #32652) |
| UTM84-52S | WGS 1984 UTM- Zone 52 South- Meter (EPSG #32752) |
| UTM84-53N | WGS 1984 UTM- Zone 53 North- Meter (EPSG #32653) |
| UTM84-53S | WGS 1984 UTM- Zone 53 South- Meter (EPSG #32753) |
| UTM84-54N | WGS 1984 UTM- Zone 54 North- Meter (EPSG #32654) |
| UTM84-54S | WGS 1984 UTM- Zone 54 South- Meter (EPSG #32754) |
| UTM84-55N | WGS 1984 UTM- Zone 55 North- Meter (EPSG #32655) |
| UTM84-55S | WGS 1984 UTM- Zone 55 South- Meter (EPSG #32755) |
| UTM84-56N | WGS 1984 UTM- Zone 56 North- Meter (EPSG #32656) |
| UTM84-56S | WGS 1984 UTM- Zone 56 South- Meter (EPSG #32756) |
| UTM84-57N | WGS 1984 UTM- Zone 57 North- Meter (EPSG #32657) |
| UTM84-57S | WGS 1984 UTM- Zone 57 South- Meter (EPSG #32757) |
| UTM84-58N | WGS 1984 UTM- Zone 58 North- Meter (EPSG #32658) |
| UTM84-58S | WGS 1984 UTM- Zone 58 South- Meter (EPSG #32758) |
| UTM84-59N | WGS 1984 UTM- Zone 59 North- Meter (EPSG #32659) |
| UTM84-59S | WGS 1984 UTM- Zone 59 South- Meter (EPSG #32759) |
| UTM84-5N | WGS 1984 UTM- Zone 5 North- Meter (EPSG #32605) |
| UTM84-5S | WGS 1984 UTM- Zone 5 South- Meter (EPSG #32705) |
| UTM84-60N | WGS 1984 UTM- Zone 60 North- Meter (EPSG #32660) |
| UTM84-60S | WGS 1984 UTM- Zone 60 South- Meter (EPSG #32760) |
| UTM84-6N | WGS 1984 UTM- Zone 6 North- Meter (EPSG #32606) |
| UTM84-6S | WGS 1984 UTM- Zone 6 South- Meter (EPSG #32706) |
| UTM84-7N | WGS 1984 UTM- Zone 7 North- Meter (EPSG #32607) |
| UTM84-7S | WGS 1984 UTM- Zone 7 South- Meter (EPSG #32707) |
| UTM84-8N | WGS 1984 UTM- Zone 8 North- Meter (EPSG #32608) |
| UTM84-8S | WGS 1984 UTM- Zone 8 South- Meter (EPSG #32708) |
| UTM84-9N | WGS 1984 UTM- Zone 9 North- Meter (EPSG #32609) |
| UTM84-9S | WGS 1984 UTM- Zone 9 South- Meter (EPSG #32709) |
| UTM89-30N | WGS 1984 UTM- Zone 30 North- Meter |
| UTMHP-10 | HPGN UTM- Zone 10 North- Meter |
| UTMHP-10F | HPGN UTM- Zone 10 North- US Foot |
| UTMHP-10IF | HPGN UTM- Zone 10 North- Intnl Foot |
| UTMHP-11 | HPGN UTM- Zone 11 North- Meter |
| UTMHP-11F | HPGN UTM- Zone 11 North- US Foot |
| UTMHP-11IF | HPGN UTM- Zone 11 North- Intnl Foot |

| Value | Description |
|---|---|
| UTMHP-12 | HPGN UTM- Zone 12 North- Meter |
| UTMHP-12F | HPGN UTM- Zone 12 North- US Foot |
| UTMHP-12IF | HPGN UTM- Zone 12 North- Intnl Foot |
| UTMHP-13 | HPGN UTM- Zone 13 North- Meter |
| UTMHP-13F | HPGN UTM- Zone 13 North- US Foot |
| UTMHP-13IF | HPGN UTM- Zone 13 North- Intnl Foot |
| UTMHP-14 | HPGN UTM- Zone 14 North- Meter |
| UTMHP-14F | HPGN UTM- Zone 14 North- US Foot |
| UTMHP-14IF | HPGN UTM- Zone 14 North- Intnl Foot |
| UTMHP-15 | HPGN UTM- Zone 15 North- Meter |
| UTMHP-15F | HPGN UTM- Zone 15 North- US Foot |
| UTMHP-15IF | HPGN UTM- Zone 15 North- Intnl Foot |
| UTMHP-16 | HPGN UTM- Zone 16 North- Meter |
| UTMHP-16F | HPGN UTM- Zone 16 North- US Foot |
| UTMHP-16IF | HPGN UTM- Zone 16 North- Intnl Foot |
| UTMHP-17 | HPGN UTM- Zone 17 North- Meter |
| UTMHP-17F | HPGN UTM- Zone 17 North- US Foot |
| UTMHP-17IF | HPGN UTM- Zone 17 North- Intnl Foot |
| UTMHP-18 | HPGN UTM- Zone 18 North- Meter |
| UTMHP-18F | HPGN UTM- Zone 18 North- US Foot |
| UTMHP-18IF | HPGN UTM- Zone 18 North- Intnl Foot |
| UT-N | NAD27 Utah State Planes- Northern Zone- US Foot (EPSG #32042) |
| UT-S | NAD27 Utah State Planes- Southern Zone- US Foot (EPSG #32044) |
| VA83-N | NAD83 Virginia State Planes- Northern Zone- Meter (EPSG #32146) |
| VA83-NF | NAD83 Virginia State Planes- Northern Zone- US Foot (EPSG #2283) |
| VA83-S | NAD83 Virginia State Planes- Southern Zone- Meter (EPSG #32147) |
| VA83-SF | NAD83 Virginia State Planes- Southern Zone- US Foot (EPSG #2284) |
| VAHP-N | HPGN/HARN Virginia State Planes- Northern Zone- Meter (EPSG #2853) |
| VAHP-NF | HPGN/HARN Virginia State Planes- Northern Zone- US Foot (EPSG #2924) |
| VAHP-S | HPGN/HARN Virginia State Planes- Southern Zone- Meter (EPSG #2854) |
| VAHP-SF | HPGN/HARN Virginia State Planes- Southern Zone- US Foot (EPSG #2925) |
| VA-N | NAD27 Virginia State Planes- Northern Zone- US Foot (EPSG #32046) |
| VA-S | NAD27 Virginia State Planes- Southern Zone- US Foot (EPSG #32047) |
| VT | NAD27 Vermont State Planes- US Foot (EPSG #32045) |
| VT83 | NAD83 Vermont State Planes- Meter (EPSG #32145) |
| VT83F | NAD83 Vermont State Planes- US Foot |
| VTHP | HPGN/HARN Vermont State Planes- Meter (EPSG #2852) |
| VTHPF | HPGN/HARN Vermont State Planes- US Foot |
| WA83-N | NAD83 Washington State Planes- Northern Zone- Meter (EPSG #32148) |
| WA83-NF | NAD83 Washington State Planes- Northern Zone- US Foot (EPSG #2285) |
| WA83-S | NAD83 Washington State Planes- Southern Zone- Meter (EPSG #32149) |
| WA83-SF | NAD83 Washington State Planes- Southern Zone- US Foot (EPSG #2286) |
| WAHP-N | HPGN Washington State Planes- Northern Zone- Meter (EPSG #2855) |
| WAHP-NF | HPGN Washington State Planes- Northern Zone- US Foot (EPSG #2926) |
| WAHP-S | HPGN Washington State Planes- Southern Zone- Meter (EPSG #2856) |
| WAHP-SF | HPGN Washington State Planes- Southern Zone- US Foot (EPSG #2927) |
| WA-N | NAD27 Washington State Planes- Northern Zone- US Foot (EPSG #32048) |

| Value | Description |
|---|---|
| WA-S | NAD27 Washington State Planes- Southern Zone- US Foot (EPSG #32049) |
| WI83-C | NAD83 Wisconsin State Planes- Central Zone- Meter (EPSG #32153) |
| WI83-CF | NAD83 Wisconsin State Planes- Central Zone- US Foot (EPSG #2288) |
| WI83-N | NAD83 Wisconsin State Planes- Northern Zone- Meter (EPSG #32152) |
| WI83-NF | NAD83 Wisconsin State Planes- Northern Zone- US Foot (EPSG #2287) |
| WI83-S | NAD83 Wisconsin State Planes- Southern Zone- Meter (EPSG #32154) |
| WI83-SF | NAD83 Wisconsin State Planes- Southern Zone- US Foot (EPSG #2289) |
| WI-C | NAD27 Wisconsin State Planes- Central Zone- US Foot (EPSG #32053) |
| WIHP-C | HPGN Wisconsin State Planes- Central Zone- Meter (EPSG #2860) |
| WIHP-CF | HPGN Wisconsin State Planes- Central Zone- US Foot (EPSG #2929) |
| WIHP-N | HPGN Wisconsin State Planes- Northern Zone- Meter (EPSG #2859) |
| WIHP-NF | HPGN Wisconsin State Planes- Northern Zone- US Foot (EPSG #2928) |
| WIHP-S | HPGN Wisconsin State Planes- Southern Zone- Meter (EPSG #2861) |
| WIHP-SF | HPGN Wisconsin State Planes- Southern Zone- US Foot (EPSG #2930) |
| WI-N | NAD27 Wisconsin State Planes- Northern Zone- US Foot (EPSG #32052) |
| WI-S | NAD27 Wisconsin State Planes- Southern Zone- US Foot (EPSG #32054) |
| WV83-N | NAD83 West Virginia State Planes- Northern Zone- Meter (EPSG #32150) |
| WV83-NF | NAD83 West Virginia State Planes- Northern Zone- US Foot |
| WV83-S | NAD83 West Virginia State Planes- Southern Zone- Meter (EPSG #32151) |
| WV83-SF | NAD83 West Virginia State Planes- Southern Zone- US Foot |
| WVHP-N | HARN (HPGN) West Virginia State Planes- Northern Zone- Meter (EPSG #2857) |
| WVHP-NF | HARN (HPGN) West Virginia State Planes- Northern Zone- US Foot |
| WVHP-S | HARN (HPGN) West Virginia State Planes- Southern Zone- Meter (EPSG #2858) |
| WVHP-SF | HARN (HPGN) West Virginia State Planes- Southern Zone- US Foot |
| WV-N | NAD27 West Virginia State Planes- Northern Zone- US Foot (EPSG #32050) |
| WV-S | NAD27 West Virginia State Planes- Southern Zone- US Foot (EPSG #32051) |
| WY83-E | NAD83 Wyoming State Planes- Eastern- Meter (EPSG #32155) |
| WY83-EC | NAD83 Wyoming State Planes- East Central Zone- Meter (EPSG #32156) |
| WY83-ECF | NAD83 Wyoming State Planes- East Central Zone- US Foot |
| WY83-EF | NAD83 Wyoming State Planes- Eastern- US Foot |
| WY83-W | NAD83 Wyoming State Planes- Western- Meter (EPSG #32158) |
| WY83-WC | NAD83 Wyoming State Planes- West Central Zone- Meter (EPSG #32157) |
| WY83-WCF | NAD83 Wyoming State Planes- West Central Zone- US Foot |
| WY83-WF | NAD83 Wyoming State Planes- Western- US Foot |
| WY-E | NAD27 Wyoming State Planes- Eastern Zone- US Foot (EPSG #32055) |
| WY-EC | NAD27 Wyoming State Planes- East Central Zone- US Foot (EPSG #32056) |
| WYHP-E | HPGN/HARN Wyoming State Planes- Eastern- Meter (EPSG #2862) |
| WYHP-EC | HPGN/HARN Wyoming State Planes- East Central Zone- Meter (EPSG #2863) |
| WYHP-ECF | HPGN/HARN Wyoming State Planes- East Central Zone- US Foot |
| WYHP-EF | HPGN/HARN Wyoming State Planes- Eastern- US Foot |
| WYHP-W | HPGN/HARN Wyoming State Planes- Western- Meter (EPSG #2865) |
| WYHP-WC | HPGN/HARN Wyoming State Planes- West Central Zone- Meter (EPSG #2864) |
| WYHP-WCF | HPGN/HARN Wyoming State Planes- West Central Zone- US Foot |
| WYHP-WF | HPGN/HARN Wyoming State Planes- Western- US Foot |

| Value | Description |
|---|---|
| WY-W | NAD27 Wyoming State Planes- Western Zone- US Foot (EPSG #32058) |
| WY-WC | NAD27 Wyoming State Planes- West Central Zone- US Foot (EPSG #32057) |

**5.15.13.CodeDesignGroup**

| Group # | Tail Height (ft) | Wingspan (ft) |
|---|---|---|
| I | <20 | <49 |
| II | 20 - <30 | 49 - <79 |
| III | 30 - <45 | 79 - <118 |
| IV | 45 - <60 | 118 - <171 |
| V | 60 - <66 | 171 - <214 |
| VI | 66 - <80 | 214 - <262 |

**5.15.14.CodeDesignSurfaceType**

| Value | Description |
|---|---|
| BRL | Building restriction line (not a standard) |
| FATO | Final Approach and Takeoff Clearance Surface |
| HAS | Heliport Safety Area |
| HPZ | Heliport Protection Zone |
| IAOFZ | Inner Approach Obstacle Free Zone |
| ITOFZ | Inner Transitional Obstacle Free Zone |
| OFZ | Obstacle Free Zone |
| POFZ | Precision obstacle free zone (See AC 150/5300-13) |
| PRSIFR | Parallel Runway Separation Simultaneous IFR Operations |
| PRSVFR | Parallel Runway Separation Simultaneous VFR Operations |
| ROFA | Runway Object Free Area |
| RPZ | Runway protection zone (See AC 150/5300-13) |
| RSA | Runway safety area |
| RWYPTX | Runway to Parallel Taxiway and Taxiline Separation |
| TOFA | Taxiway and taxilane object free area (See AC 150/5300-13) |
| TSA | Threshold sighting area |
| TSS | Threshold Siting Surface (See AC 150/5300-13) |
| TXSA | Taxiway safety area (See AC 150/5300-13) |

**5.15.15.CodeDirectionality**

| Value | Description |
|---|---|
| BI | Bidirectional |
| ES | One way from end-to-startpoint |
| SE | One way from start-to-endpoint |

**5.15.16.CodeFaaRegion**

| Value | Description |
|---|---|
| AAL | Alaska |
| ACE | Central |
| AEA | Eastern |
| AGL | Great Lakes |
| ANE | New England |
| ANM | Northwest Mountain |
| ASO | Southern |

| Value | Description |
|---|---|
| ASW | Southwest |
| AWP | Western Pacific |

**5.15.17.CodeFuel**

| Value | Description |
|---|---|
| A | Jet A, without icing inhibitor |
| A+ | Jet A+, Kerosene fuel, Type A, Jet A or JP-1 With icing inhibitor. |
| A1 | Jet A1, without icing inhibitor |
| A1+ | Jet A1+, Jet A1 with icing inhibitor. |
| B | Jet B, Wide cut turbine fuel, Without icing inhibitor. |
| B+ | Jet B+, wide cut turbine fuel with icing inhibitor. |
| C | 91/96 octane gasoline, leaded, No MIL Spec. |
| F | 80 octane gasoline, unleaded, No MIL Spec. |
| G | Aviation Gasoline (AVGAS), octane unknown |
| H | 108/135 octane gasoline, leaded, No MIL Spec |
| J | Jet fuel available but type is unknown |
| J4 | JP-4, Wide cut turbine fuel MIL Spec T-5624 |
| J5 | JP-5, Kerosene MIL Spec T-5624 |
| J8 | JP-8, Semi Kerosene MIL Spec T-83133, without icing inhibitor |
| K | 73 octane gasoline, unleaded, No MIL Spec |
| X | Storage tanks available and fuel type unknown or the tanks were used at one time for aviation products but may now store other products |
| 7 | JP-7, Jet Propellant type 7 (Glass Tank Fuel) |
| 80 | 80/87 octane gasoline, leaded, MIL-L-5572F (RED) |
| 100 | 100/130 octane gasoline, leaded, MIL-L-5572F (GREEN) |
| 100LL | 100/130 MIL Spec, low lead, aviation gasoline (BLUE) |
| 115 | 115/145 octane gasoline, leaded, MIL-L-5572F (PURPLE) |

**5.15.18.CodeGateStandType**

| Name | Definition |
|---|---|
| ANG-NI | Angled nose-in parking position |
| ANG-NO | Angled nose-out parking position |
| HS | Hard stand |
| ISO | Isolated parking position. |
| JB | Jet bridge |
| NI | Nose-in parking position. |
| OTHER | Other |
| PR | Portable ramp |
| RMT | Remote parking position. |
| SR | Stairs |
| TM | Temporary |
| UNK | unknown |

**5.15.19.CodeGridType**

| Name | Definition |
|---|---|
| ed50 | European Datum 1950 |
| gaussKruger | Gauss Kruger |
| GEOREF | World Geographic Reference System |

| Name | Definition |
|---|---|
| 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 |

**5.15.20.CodeHazardCategory**

| Class | Division | Description |
|---|---|---|
| 1 | | Explosives are any substance or article, including a device, which is designed to function by explosion or which, by chemical reaction within itself is able to function in a similar manner even if not designed to function by explosion (unless the article is otherwise classed under a provision of 49CFR). |
| | 1.1 | Explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously |
| | 1.2 | Explosives that have a projection hazard but not a mass explosion hazard |
| | 1.3 | Explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or, both but not a mass explosion hazard. |
| | 1.4 | Explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package. |
| | 1.5 | Blasting agents consist of very insensitive explosives. This division comprises substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport. |
| | 1.6 | Consists of extremely insensitive articles which do not have a mass explosive hazard. This division comprises articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. |
| 2 | | HazMat Class 2 includes all gases which are compressed and stored for transportation. Class 2 has three divisions: Flammable (also called combustible), Non-Flammable/Non-Poisonous, and Poisonous. |
| | 2.1 | Flammable Gas - 454 kg (1001 lb) of any material which is a gas at 20 °C (68 °F) or less and 101.3 kPa (14.7 psi) of pressure (a material which has a boiling point of 20 °C (68 °F) or less at 101.3 kPa (14.7 psi)) which-<br>1. Is ignitable at 101.3 kPa (14.7 psi) when in a mixture of 13 percent or less by volume with air; or<br>2. Has a flammable range at 101.3 kPa (14.7 psi) with air of at least 12 percent regardless of the lower limit. |

| Class | Division | Description |
|---|---|---|
| | 2.2 | Non-Flammable, Non-Poisonus Gas - This division includes compressed gas, liquefied gas, pressurized cryogenic gas, compressed gas in solution, asphyxiant gas and oxidizing gas. A non-flammable, nonpoisonous compressed gas (Division 2.2) means any material (or mixture) which:<br>1. Exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F), and<br>2. Does not meet the definition of Division 2.1 or 2.3. |
| | 2.3 | Poison Gas - Gas poisonous by inhalation means a material which is a gas at 20 °C or less and a pressure of 101.3 kPa (a material which has a boiling point of 20 °C or less at 101.3kPa (14.7 psi)) and which:<br>1. Is known to be so toxic to humans as to pose a hazard to health during transportation, or<br>2. In the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC50 value of not more than 5000 ml/m³. See 49CFR 173.116(a) for assignment of Hazard Zones A, B, C or D. LC50 values for values for mixtures may be determined using the formula in 49 CFR 173.133(b)(1)(i) |
| 3 | | HazMat Class 3 are flammable liquids. They are liquids with flash point of not more than 60.5°C (141°F), or any material in a liquid phase with a flash point at or above 37.8°C (100°F). |
| 4 | | HazMat Class 4 are Flammable solids. Flammable Solids are any materials in the solid phase of matter that can readily undergo combustion in the presence of a source of ignition under standard circumstances, i.e. without:<br>Artificially changing variables such as pressure or density; or<br>Adding accelerants. |
| | 4.1 | Flammable Solid |
| | 4.2 | Spontaneously Combustible |
| | 4.3 | Dangerous When Wet - Dangerous when wet material is material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram of the material, per hour, when tested in accordance with the UN Manual of Tests and Criteria. |
| 5 | | HazMat Class 5 Oxidizing Agents and Organic Peroxides - An oxidizer is a chemical that readily yields oxygen in reactions, thereby causing or enhancing combustion |
| | 5.1 | Oxidizers - An oxidizer is a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials |
| | 5.2 | Organic Peroxides - An organic peroxide is any organic compound containing oxygen (O) in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals (with some exceptions) |

| Class | Division | Description |
|---|---|---|
| 6 | | HazMat Class 6 is Toxic and Infectious Substances. Poisonous material is a material, other than a gas, known to be so toxic to humans that it presents a health hazard during transportation |
| | 6.1 | Poisonous material is a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity: |
| | 6.2 | Biohazards |
| 7 | | HazMat Class 7 is Radioactive substances. Radioactive substances are materials that emit radiation. |
| 8 | | Hazmat Class 8 is Corrosive Substances. A corrosive material is a liquid or solid that causes full thickness destruction of human skin at the site of contact within a specified period of time. A liquid that has a severe corrosion rate on steel or aluminum based on the criteria in 49CFR 173.137(c)(2) is also a corrosive material. |
| 9 | | HazMat Class 9 is Miscellaneous Substances. The miscellaneous hazardous materials category encompasses all hazardous materials that do not fit one of the definitions listed in Class 1 through Class 8. |

**5.15.21.CodeHazardType**

| Value | Description |
|---|---|
| BASH | Bird Aircraft Strike Hazard |
| DEER STRIKE | |
| TBD | Hazard yet to be determined |
| TORTOISE_PITFALL | |
| UNKNOWN | |

**5.15.22.CodeHowAcquired**

| Value | Description |
|---|---|
| AIP_DEVELOPMENT | Land acquired using AIP funds for airport development |
| AIP_APPROACH_PROTECTION | Land acquired using AIP funds for approach protection |
| AIP_NOISE | Land acquired using AIP funds for noise |
| DONATION | Land acquired by donation |
| PFC_DEVELOPMENT | Land acquired using PFC funds for airport development |
| PFC_APPROACH_PROTECTION | Land acquired using PFC funds for approach protection |
| PFC_NOISE | Land acquired using PFC funds for noise |
| SURPLUS_PROPERTY | Land acquired as surplus property |

**5.15.23.CodeLandmarkType**

| Value | Description |
|---|---|
| AERIAL CABLEWAY | |
| AGRICULTURE AREA | |
| AIRPORT | |
| ATHLETIC FIELD | |
| BOAT RAMP | |
| BREAKWATER | |
| CANAL | |
| CEMETERY | |
| CREEK | |

| Value | Description |
|---|---|
| DAM | |
| FENCE | |
| GOLF COURSE | |
| LEVEE | |
| MILITARY AREA | |
| MOUNTAIN PASS | |
| OTHER | |
| PIER | |
| POWERPLANT | |
| QUARRY | |
| QUAY | |
| RACECOURSE OR TRACK | |
| RAILROAD | |
| RIVER | |
| ROAD | |
| SHORELINE | |
| STADIUM | |
| STREAM | |
| TANK TRAP | |
| TRENCH | |
| URBAN AREA | |
| UTILITY LINE | |
| WALL | |
| WHARF | |

**5.15.24.CodeLandUseType**

| Value | Description |
|---|---|
| 1000 | Residential activities (Source: APA LBCS) |
| 1100 | Household activities (Source: APA LBCS) |
| 1200 | Transient living (Source: APA LBCS) |
| 1300 | Institutional living (Source: APA LBCS) |
| 2000 | Shopping, business, or trade activities (Source: APA LBCS) |
| 2100 | Shopping (Source: APA LBCS) |
| 2110 | Goods-oriented shopping (Source: APA LBCS) |
| 2120 | Service-oriented shopping (Source: APA LBCS) |
| 2200 | Restaurant-type activity (Source: APA LBCS) |
| 2210 | Restaurant-type activity with drive-through (Source: APA LBCS) |
| 2300 | Office activities (Source: APA LBCS) |
| 2310 | Office activities with high turnover of people (Source: APA LBCS) |
| 2320 | Office activities with high turnover of automobiles (Source: APA LBCS) |
| 3000 | Industrial, manufacturing, and waste-related activities (Source: APA LBCS) |
| 3100 | Plant, factory, or heavy goods storage or handling activities (Source: APA LBCS) |
| 3110 | Primarily plant or factory-type activities (Source: APA LBCS) |
| 3120 | Primarily goods storage or handling activities (Source: APA LBCS) |
| 3200 | Solid waste management activities (Source: APA LBCS) |
| 3210 | Solid waste collection and storage (Source: APA LBCS) |
| 3220 | Landfilling or dumping (Source: APA LBCS) |
| 3230 | Waste processing or recycling (Source: APA LBCS) |

| Value | Description |
|---|---|
| 3300 | Construction activities (grading, digging, etc.) (Source: APA LBCS) |
| 4000 | Social, institutional, or infrastructure-related activities (Source: APA LBCS) |
| 4100 | School or library activities (Source: APA LBCS) |
| 4110 | Classroom-type activities (Source: APA LBCS) |
| 4120 | Training or instructional activities outside classrooms (Source: APA LBCS) |
| 4130 | Other instructional activities including those that occur in libraries (Source: APA LBCS) |
| 4200 | Emergency response or public-safety-related activities (Source: APA LBCS) |
| 4210 | Fire and rescue-related activities (Source: APA LBCS) |
| 4220 | Police, security, and protection-related activities (Source: APA LBCS) |
| 4230 | Emergency or disaster-response-related activities (Source: APA LBCS) |
| 4300 | Activities associated with utilities (water, sewer, power, etc.) (Source: APA LBCS) |
| 4310 | Water-supply-related activities (Source: APA LBCS) |
| 4311 | Water storing, pumping, or piping (Source: APA LBCS) |
| 4312 | Water purification and filtration activities (Source: APA LBCS) |
| 4313 | Irrigation water storage and distribution activities (Source: APA LBCS) |
| 4314 | Flood control, dams, and other large irrigation activities (Source: APA LBCS) |
| 4320 | Sewer-related control, monitor, or distribution activities (Source: APA LBCS) |
| 4321 | Sewage storing, pumping, or piping (Source: APA LBCS) |
| 4322 | Sewer treatment and processing (Source: APA LBCS) |
| 4330 | Power generation, control, monitor, or distribution activities (Source: APA LBCS) |
| 4331 | Power transmission lines or control activities (Source: APA LBCS) |
| 4332 | Power generation, storage, or processing activities (Source: APA LBCS) |
| 4340 | Telecommunications-related control, monitor, or distribution activities (Source: APA LBCS) |
| 4350 | Natural gas or fuels-related control, monitor, or distribution Activities (Source: APA LBCS) |
| 4400 | Mass storage, inactive (Source: APA LBCS) |
| 4410 | Water storage (Source: APA LBCS) |
| 4420 | Storage of natural gas, fuels, etc. (Source: APA LBCS) |
| 4430 | Storage of chemical, nuclear, or other materials (Source: APA LBCS) |
| 4500 | Health care, medical, or treatment activities (Source: APA LBCS) |
| 4600 | Interment, cremation, or grave digging activities (Source: APA LBCS) |
| 4700 | Military base activities (Source: APA LBCS) |
| 4710 | Ordnance storage (Source: APA LBCS) |
| 4720 | Range and test activities (Source: APA LBCS) |
| 5000 | Travel or movement activities (Source: APA LBCS) |
| 5100 | Pedestrian movement (Source: APA LBCS) |
| 5200 | Vehicular movement (Source: APA LBCS) |
| 5210 | Vehicular parking, storage, etc. (Source: APA LBCS) |
| 5220 | Drive-in, drive through, stop-n-go, etc. (Source: APA LBCS) |
| 5400 | Trains or other rail movement (Source: APA LBCS) |
| 5410 | Rail maintenance, storage, or related activities (Source: APA LBCS) |
| 5500 | Sailing, boating, and other port, marine and water-based Activities (Source: APA LBCS) |
| 5510 | Boat mooring, docking, or servicing (Source: APA LBCS) |
| 5520 | Port, ship-building, and related activities (Source: APA LBCS) |
| 5600 | Aircraft takeoff, landing, taxiing, and parking (Source: APA LBCS) |

| Value | Description |
|---|---|
| 5700 | Spacecraft launching and related activities (Source: APA LBCS) |
| 6000 | Mass assembly of people (Source: APA LBCS) |
| 6100 | Passenger assembly (Source: APA LBCS) |
| 6200 | Spectator sports assembly (Source: APA LBCS) |
| 6300 | Movies, concerts, or entertainment shows (Source: APA LBCS) |
| 6400 | Gatherings at fairs and exhibitions (Source: APA LBCS) |
| 6500 | Mass training, drills, etc. (Source: APA LBCS) |
| 6600 | Social, cultural, or religious assembly (Source: APA LBCS) |
| 6700 | Gatherings at galleries, museums, aquariums, zoological parks, etc. (Source: APA LBCS) |
| 6800 | Historical or cultural celebrations, parades, reenactments, etc. (Source: APA LBCS) |
| 7000 | Leisure activities (Source: APA LBCS) |
| 7100 | Active leisure sports and related activities (Source: APA LBCS) |
| 7110 | Running, jogging, bicycling, aerobics, exercising, etc. (Source: APA |
| 7120 | Equestrian sporting activities (Source: APA LBCS) |
| 7130 | Hockey, ice skating, etc. (Source: APA LBCS) |
| 7140 | Skiing, snowboarding, etc. (Source: APA LBCS) |
| 7150 | Automobile and motorbike racing (Source: APA LBCS) |
| 7160 | Golf (Source: APA LBCS) |
| 7180 | Tennis (Source: APA LBCS) |
| 7190 | Track and field, team sports (baseball, basketball, etc.), or other sports (Source: APA LBCS) |
| 7200 | Passive leisure activity (Source: APA LBCS) |
| 7210 | Camping (Source: APA LBCS) |
| 7220 | Gambling (Source: APA LBCS) |
| 7230 | Hunting (Source: APA LBCS) |
| 7240 | Promenading and other activities in parks (Source: APA LBCS) |
| 7250 | Shooting (Source: APA LBCS) |
| 7260 | Trapping (Source: APA LBCS) |
| 7300 | Flying or air-related sports (Source: APA LBCS) |
| 7400 | Water sports and related leisure activities (Source: APA LBCS) |
| 7410 | Boating, sailing, etc. (Source: APA LBCS) |
| 7420 | Canoeing, kayaking, etc. (Source: APA LBCS) |
| 7430 | Swimming, diving, etc. (Source: APA LBCS) |
| 7440 | Fishing, angling, etc. (Source: APA LBCS) |
| 7450 | Scuba diving, snorkeling, etc. (Source: APA LBCS) |
| 7460 | Water-skiing (Source: APA LBCS) |
| 8000 | Natural resources-related activities (Source: APA LBCS) |
| 8100 | Farming, tilling, plowing, harvesting, or related activities (Source: APA ) |
| 8200 | Livestock related activities (Source: APA LBCS) |
| 8300 | Pasturing, grazing, etc. (Source: APA LBCS) |
| 8400 | Logging (Source: APA LBCS) |

**5.15.25. CodeLightingConfigurationType**

| Value | Description |
|---|---|
| ALSF-1 | High Intensity Approach Lighting System - Configuration 1 |
| ALSF-2 | High Intensity Approach Lighting System - Configuration 2 |
| APAP | Alignment of Element Systems |

| Value | Description |
|---|---|
| APBN | Airport Rotating Beacon |
| CLRBAR | Taxiway Clearance Bar Lights |
| CODEBEACON | Code Beacon |
| COURSE | Course Lights |
| F | Fixed |
| FL | Flashing (Sea Plane Navigation Buoy use only) |
| FL (2) | Group Flashing (Sea Plane Navigation Buoy use only) |
| FL (2+1) | Composite Group-Flashing (Sea Plane Navigation Buoy use only) |
| HLL | Hover Lane Light |
| HLLL | Hover Lane Limit Light |
| HPIL | Helipad Perimeter Inset Light |
| HPPEL | Helipad Perimeter Light (Elevated) |
| HPPLSF | Helipad Perimeter Light (Semiflush) |
| ISO | Isophase (Sea Plane Navigation Buoy use only) |
| L-804 | Unidirectional elevated runway guard lights |
| L-850A | Bi directional or unidirectional runway in pavement light used for runway centerline, Land and Hold Short Operations (LAHSO). |
| L-850B | Unidirectional runway in pavement light used for runway touchdown zone and medium intensity approach light system applications. |
| L-850C | Bi directional runway in pavement light used for runway edge lights and displaced threshold applications. |
| L-850D | Bi directional or unidirectional runway in pavement lights used for runway threshold or runway end light applications. |
| L-850E | Unidirectional runway in pavement light used for runway threshold light and Medium Intensity Approach Light System applications |
| L-850F | Unidirectional runway in pavement lights white flashing lights used for LAHSO |
| L-852A | Bi directional or unidirectional taxiway centerline in pavement lights used for the straight sections of taxiways where operations are permitted when the Runway Visual Range (RVR) is greater than or equal to 1200 feet. |
| L-852B | Bi directional or unidirectional taxiway centerline in pavement lights for curved sections of taxiways where operations are permitted when the Runway Visual Range (RVR) is greater than or equal to 1200 feet. |
| L-852C | bi directional or unidirectional taxiway centerline in pavement lights for straight portions of taxiways where operations are permitted when the Runway Visual Range (RVR) is less than 1200 feet. |
| L-852D | Bi directional or unidirectional taxiway centerline in pavement lights used for curved portions of taxiways where operations are permitted when the Runway Visual Range is less than 1200 feet. |
| L-852E | Omni directional taxiway intersection in pavement lights where operations are permitted when the Runway Visual Range is greater than or equal to 1200 feet. |
| L-852E/F | Runway Guard Light in-pavement |
| L-852F | Omni directional taxiway intersection in pavement lights where operations are permitted when the Runway Visual Range is less than 1200 feet. |
| L-852G | Unidirectional Runway Guard in pavement lights |

| Value | Description |
|---|---|
| L-852G/S | Combination Runway Guard/Stop bar light in-pavement |
| L-852J | Bi directional taxiway centerline in pavement lights for the curved portions of taxiways where operations are permitted when the Runway Visual Range is greater than or equal to 1200 feet. |
| L-852K | Bi directional taxiway centerline in pavement lights for the curved portions of taxiway where operation are permitted when the Runway Visual Ranger is less than 1200 feet. |
| L-852S | Unidirectional in pavement Stop Bar lights |
| L-852T | Omni directional in pavement taxiway edge and Apron edge lights |
| L-853 | Reflective Marker |
| L-854 | Radio Controller (Pilot Controlled Lights) |
| L-860 | Omni directional elevated runway edge lights for Visual Flight Rules (VFR) operations. |
| L-860E | Bi directional or unidirectional elevated runway threshold or runway end lights for Visual Flight Rules operations. |
| L-861 | Omni directional or bi directional elevated runway edge or displaced threshold lights for non-precision Instrument Flight Rules (IFR) operations. |
| L-861E | Bi directional or unidirectional elevated runway threshold or runway end lights for non-precision Instrument Flight Rule operations. |
| L-861SE | Bi directional and unidirectional elevated runway threshold, runway end, and displaced threshold lights for non-precision Instrument Flight Rule operations |
| L-861T | Omni directional elevated taxiway and apron edge lights. |
| L-862 | Bi directional elevated runway edge, threshold, and displaced threshold lights for precision Instrument Flight Rule operations. |
| L-862E | Bi directional or unidirectional elevated runway threshold, runway end, and displaced threshold lights for precision Instrument Flight Rule operations. |
| L-862S | Unidirectional elevated stop bar lights |
| L-880/L881 | Precision Approach Path Indicator |
| LDIN | Lead In Lighting System |
| MALS | Medium Intensity Approach Lighting System |
| MALSF | Medium Intensity Approach Lighting System with Sequenced Flashing Lights |
| MALSR | Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (RAIL) |
| MO (A) | Morse Code (Sea Plane Navigation Buoy use only) |
| NONE | No lights |
| OBSCAT | Catenary Lighting |
| OBSDUAL | A combination of OBSRED and OBSWHT |
| OBSRED | Aviation red Obstruction Lights |
| OBSWHITE | Flashing White Obstruction Lights |
| OC | Occulting (Sea Plane Navigation Buoy use only) |
| ODALS | Omnidirectional Approach Lighting System |
| OTHER | Other |
| PAPI2 | Precision Approach Path Indicator with 2 lights |
| PAPI4 | Precision Approach Path Indicator with 4 lights |

| Value | Description |
|---|---|
| PORTABLE | Portable Lights |
| PVASI | Pulsating visual Approach Slope Indicator |
| Q | Quick (Flashing) (Sea Plane Navigation Buoy use only) |
| RAIL | Runway Alignment Indicator Lights |
| REIL | Runway End Identifier Lights |
| RWSL | Runway Status Lights |
| SALS | Short Approach lighting System |
| SMGCS | Surface Movement Guidance Control System |
| SSALF | Short Simplified Approach Light System with Sequenced Flashing Lights |
| SSALR | Simplified Short Approach Lighting System with Runway Alignment Indicator |
| TRCV | TriColor VASI |
| T-VASI | "T" Visual Approach Slope Indicator |
| TWYON_OFFLGT | Taxiway Lead on/off lights |
| 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 |

### 5.15.26. CodeLoadingBridgeType

| Value | Description |
|---|---|
| ARM | Moveable Arm |
| PORTABLE_RAMP | Portable Ramp |
| PORTABLE_STAIRS | Portable Stairs |
| OTHER | Other |

### 5.15.27. CodeLowVisibilityCategory

| Value | Description |
|---|---|
| 0 | No low visibility operation supported |
| 1 | Supports ILS CAT I low visibility operations |
| 2 | Supports ILS CAT II III low visibility operations |

### 5.15.28. CodeMarkingFeatureType

| Value | Description |
|---|---|
| AIMING_POINT | Runway Aiming Point (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| ALTBAND | lternating bands of aviation orange and white [Source AC 70/7640-1] |
| APRON_SIGN | Surface painted apron position/entrance sign (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| ARROW | Arrows identify the displaced threshold area to provide centerline guidance for takeoffs and rollouts (Geometry Type: Line) [Source: AC 150/5340-1] |
| ARROW_HEAD | Arrow heads are used in conjunction with a threshold bar to further highlight the beginning of a runway (Geometry Type: Line) [Source: AC 150/5340-1] |

| Value | Description |
|---|---|
| CHECKERBOARD | Checkerboard obstruction marking pattern [Source AC 70/7640-1] |
| CHEVRON | A marking used to designate blast pads and other areas that are not suitable for aircraft (Geometry Type: Line) [Source: AC 150/5340-1] |
| DEMARCATION | Demarcation Bar (Geometry Type: Line) [Source: AC 150/5340-1] |
| DIR_SIGN | Surface painted taxiway direction signs (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| GATE_LINE | 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. |
| GATE_SIGN | Surface painted gate position signs (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| HOLD_SIGN | Surface painted holding position signs (Geometry Type: AC 150/5340-1] |
| ILS_HOLD | Holding position markings for Instrument Landing Systems (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| INTERSECTION_HOLD | Holding position marking for taxiway/taxiway intersections (Geometry Type: Line) [Source: AC 150/5340-1] |
| LAHSO | Marking associated with a Land And Hold Short Operations (LAHSO) |
| LOCATION_SIGN | Surface painted taxiway location signs (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| NON_MOVE_AREA | Non-movement area marking (Geometry Type: Line) [Source: AC 150/5340-1] |
| NONE | No marking(s) |
| OTHER | Other markings not listed |
| OTHER_LINE | Other markings suitable for representation as a line |
| OTHER_POLYGON | Other markings suitable for representation as a polygon |
| PERM_CLOSED | Markings for permanently closed runways and taxiways (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| POS_SIGN | Geographic position markings (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| RWY_CL | Runway Centerline (Geometry Type: Line) [Source: AC150/5340-1] |
| RWY_HOLD | Runway holding position markings on Runways (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| RWY_ID | Runway Designation Marking (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| RWY_SHD | Runway shoulder markings (Geometry Type: Line) [Source: AC 150/5340-1] |
| RWY_THRSH | Runway Threshold Marking (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| SIDE_STRP | Runway Side Stripe Marking (Geometry Type: Line) [Source: AC 150/5340-1] |
| SOLID | Solid pattern obstruction marking [Source AC 70/7640-1] |
| TDZ_MARK | Runway Touchdown Zone Marking (Geometry Type: Polygon) [Source: AC 150/5340-1] |

| Value | Description |
|---|---|
| TEMP_CLOSED | Markings for temporarily closed runways and taxiways (Geometry Type: Line) [Source: AC 150/5340-1] |
| THRSH_BAR | Runway Threshold Bar (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| TIEDOWN | Aircraft tiedown |
| TWY_CL | Taxiway Centerline (Geometry Type: Line) [Source: AC 150/5340-1] |
| TWY_EDGE | Taxiway edge marking (Geometry Type: Line) [Source: AC 150/5340-1] |
| TWY_HOLD | Runway hold position markings on taxiways (Geometry Type: Polygon) [Source: AC 150/5340-1] |
| TWY_SHD | Taxiway shoulder marking (Geometry Type: Line) [Source: AC 150/5340-1] |
| VEHICLE | Vehicle roadway markings (Geometry Type: Line) [Source: AC 150/5340-1] |

**5.15.29.CodeMonumentType**

| Value | Description |
|---|---|
| 1ST_ORDER_CLASS_I | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| 1ST_ORDER_CLASS_II | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| 2ND_ORDER_CLASS_I | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| 2ND_ORDER_CLASS_II | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| 3RD_ORDER_NO_TABLET | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| 3RD_ORDER_WITH_TABLET | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [NGS] |
| A_Order | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [FGCS] |
| B_Order | Meets the standards and specifications for geodetic control network accuracy according to the Federal Geodetic Control Subcommittee [FGCS] |
| 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 |

| Value | Description |
|---|---|
| FOUND_CLOSING_CORNER | 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 |
| FOUND_SECTION_CORNER | 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 |
| MEANDER_CORNER | 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: Hypsography] |
| UNMONUMENTED | Indicates that no permanent marker has been placed |
| WEAK_CORNER | 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] |
| WITNESS_CORNER | 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] |

**5.15.30.CodeNavaidEquipmentType**

| Value | Description |
|---|---|
| ARSR | Air Route Surveillance Radar |
| ASR | Airport Surveillance Radar |
| DF | Direction Finding Equipment |
| DME | Distance Measuring Equipment |
| FM | Fan Marker |
| FMH | Fan Marker located with a radio beacon |
| GS CE | Glide Slope Capture Effect |
| GS EF | Glide Slope End Fire |
| GS NR | Glide Slope Null Reference |
| GS SB | Glide Slope Side Band |
| LOC | Localizer |
| MLSAZ | Microwave Landing System Azimuth Antenna |
| MLSDME | Microwave Landing System DME |
| MLSEL | Microwave Landing System Elevation Antenna |
| MSBLS-AZ | Microwave Scan Beam Landing System Azimuth |
| MSBLS-DME | Microwave Scan Beam Landing System Distance Measuring Equipment |
| MSBLS-EL | Microwave Scan Beam Landing System Elevation |
| MTI | Moving Target Indicator Reflector |
| NDB/C | Nondirectional Radio Beacon -- Compass Locator |
| NDB/H | Nondirectional Radio Beacon -- High Frequency |
| NDB/M | Nondirectional Radio Beacons/Medium HF |

| Value | Description |
|---|---|
| NDB/U | Nondirectional Radio Beacons/Ultra HF |
| PAR | Precision Approach Radar |
| SDF | Simplified Direction Finding Equipment |
| SECRA | Secondary Radar Antenna |
| TACAN | Tactical Air Navigation |
| TDR | Touchdown Reflector |
| TLS-APGS | Transponder Landing System Approach Glideslope |
| TLS-LOC | Transponder Landing System – Localizer |
| VISUAL | Used to identify the navaid as a visual system |
| VOR | VHF Omnidirectional Range |
| VORTAC | VOR and collocated TACAN |
| VOT | VOR Test Facility |

**5.15.31. CodeNavaidSystemType**

| Value | Description |
|---|---|
| DF | Direction Finder |
| ILS | Instrument Landing System |
| MLS | Microwave Landing System |
| MSBLS | Microwave Scan Beam Landing System |
| NDB/C | Nondirectional Radio Beacon -- Compas Locator |
| NDB/H | Nondirectional Radio Beacon -- High Frequency |
| NDB/M | Nondirectional Radio Beacons/Medium HF |
| NDB/U | Nondirectional Radio Beacons/Ultra HF |
| PAR | Precision Approach Radar |
| TLS | Transponder Landing System |

**5.15.32. CodeObstacleSource**

| Value | Description |
|---|---|
| AD | Airport Design and Planning |
| AF | FAA Tech Ops Field Survey |
| AO | Airports Field Office |
| DD | Digital Terrain Elevation Data |
| DI | U.S. Department of Interior Maps |
| DM | USGS Digital Elevation Model |
| EO | Estimated by Airport Owner |
| F77 | Part 77 Analysis |
| FI | Flight Inspection |
| NV | Non-Vertically Guided Airport Airspace Analysis |
| OF | Digital Obstacle File (FAA) |
| OR | Other Source not named |
| RS | Remote Sensed |
| SE | Spot Elevations |
| SR | Shuttle Radar Terrain Model |
| ST | State Coded |
| SV | Field Survey |
| TE | TERPS Analysis |
| VG | Vertically Guided Airport Airspace Analysis |
| WW | Worldwide DoD |

**5.15.33.CodeObstacleType**

| Value | Description |
|---|---|
| AERIAL CABLEWAY | |
| AERIAL CABLEWAY PYLON | |
| AGRICULTURE EQUIPMENT | Generic for any agricultural equipment |
| AIRCRAFT | Generic for a parked or moving aircraft |
| AMUSEMENT PARK STRUCTURE | |
| ANTENNA | |
| AQUEDUCT | |
| ARCH | |
| ATHLETIC FIELD | Generic for any type of athletic field or stadium |
| BILLBOARD | |
| BLAST FURNACE | |
| BLEACHERS | |
| BRIDGE SUPERSTRUCTURE | Generic for larger bridges such as cable stayed bridges etc. |
| BRIDGE TOWER | |
| BRIDGE/OVERPASS/VIADUCT | Generic for any type of bridge |
| BUILDING | Generic for any type of building |
| BUSH | Generic for bushes and other low growing vegetation |
| CABLE CAR/RAILWAY | |
| CATALYTIC CRACKER | An oil refinery unit in which the cracking of petroleum takes place in the presence of a catalyst |
| CATENARY | The curve formed by a perfectly flexible, uniformly dense, and inextensible cable suspended from its endpoints. |
| CHIMMNEY/SMOKESTACK | |
| CHURCH | Generic for houses of worship |
| COMMUNICATION BUILDING | |
| COMMUNICATION TOWER | |
| CONTROL TOWER | |
| CONVEYOR | |
| COOLING TOWER | A large tower or similar structure typically attached to a power plant through which water is circulated to lower its temperature by partial evaporation |
| CRANE | |
| DAM | |
| DEBRIS/RUINS | |
| DIRT PILE | |
| DOME | |
| DREDGE/POWERSHOVEL /DRAG | |
| ELEVATOR | |
| FLAGPOLE | |
| FLARE PIPE | |
| FORTIFICATION OR FORT | |
| GRAIN BIN/SILO | |
| GRAIN ELEVATOR | |
| HOPPER | |
| HORIZONTAL POINT | Point of known horizontal position |

| Value | Description |
|---|---|
| INTERSTATE | Interstate highways with 17 foot vehicle allowance added to the features elevation |
| LAUNCHPAD | |
| LIGHT RAILWAY | Generic for people mover systems serving airports |
| LIGHT SUPPORT STRUCTURE | |
| LIGHT VESSEL/LIGHTSHIP | |
| LIGHTHOUSE | |
| MONUMENT | Generic for historical or cultural monuments |
| NATURAL HIGH POINT | Generic for high terrain features |
| NAVAID | Used when defined as an obstacle |
| NUCLEAR REACTOR | |
| OFF-SHORE PLATFORM | |
| PARKING LOT | |
| PLANT | Generic for manufacturing facilities |
| POLE | Generic for utility or light poles providing local service |
| POWER PLANT | |
| POWER TRANSMISSION LINE | Larger Tower high power Utility lines |
| POWER TRANSMISSION PYLON | Larger tower high power utility structures |
| PRIMARY ROAD | Non-Interstate roads with 15 foot vehicle allowance added to the features elevation |
| PROCESING/TREATMENT PLANT | |
| RAILROAD | Railroad track with 23 foot vehicle allowance added to the features elevation. |
| REFINERY | |
| RIG/SUPERSTRUCTURE | |
| ROAD SIGN | Interstate highway overhead signs |
| SCRUB | |
| SECONDARY ROAD | Local city, county state roads with 10 foot vehicle allowance added to the features elevation |
| SHIP | Ship underway |
| SHIP STORAGE | Ship manufacturing or storage facilities |
| SIGN | Generic for any type of sign other than interstate or street signs |
| SKI JUMP | |
| SKI LIFT | |
| SKI PYLON | |
| SKYSCRAPER | |
| SPIRE | |
| STACK | |
| STADIUM | |
| STEEPLE | |
| STORAGE DEPOT | |
| STREET SIGN | Signs used to control traffic or provide direction information other than interstate signs |
| SUBSTATION/TRANSFORMER | |
| TANK | Generic for other types of tanks |
| TELEPHONE LINE | |

| Value | Description |
|---|---|
| TELEPHONE PYLON/POLE | |
| TETHERED BALLOON | |
| TOWER (NON-COMMUNICATON TOWERS) | |
| TRAFFIC LIGHT/SIGNAL | |
| TRAMWAY | |
| TREE | Generic for a single or small group of trees |
| TREE OUTLINE | Dense area of trees |
| UTILITY LINE | Generic for local utility service |
| VEGETATION | |
| VEHICLE | Generic for any type of vehicle |
| VERTICAL POINT | Point of known elevation |
| VERTICAL STRUCTURE | Generic for items not classified otherwise in this list |
| WALL | |
| WATER TOWER | Generic for water towers |
| WIND MOTOR | |
| WINDMILL | Single windmill |
| WINDMILL FARMS | Multiple Windmills located close together |

**5.15.34.CodeObstructionAreaType**

| Value | Description |
|---|---|
| AG_EQUIP | Agricultural equipment |
| BUILDING | |
| GROUND | |
| MOBILE_CRANE | |
| OTHER | |
| TREE | |
| URBAN | |
| VESSEL | |

**5.15.35.CodeOffsetDirection**

| Value | Description |
|---|---|
| CL | On centerline |
| L | Offset to the left |
| R | Offset to the right |

**5.15.36.CodeOisSurfaceCondition**

| Value | Description |
|---|---|
| PRIMARY | Identifies an obstructing area solely within a single surface. |
| SUPPLEMENTARY | Used to identify when an obstructing area covers more than a single OIS. |

**5.15.37.CodeOisSurfaceType**

| Value | Description |
|---|---|
| AAAA | Approach Surfaces |
| AAAC | Conical Surface |
| AAAH | Horizontal Surface |

| Value | Description |
|---|---|
| AAAP | Primary Surfaces |
| AAAT | Transitional Surfaces |
| AAAV | Vertical Guidance Protection Surface |
| APRC77 | 14 CFR Part 77 Approach Surfaces |
| CONL77 | 14 CFR Part 77 Conical Surface |
| DEPT | Departure Analysis |
| HORZ 77 | 14 CFR Part 77 Horizontal Surface |
| OEIA | One Engine Inoperative Analysis |
| PRIM77 | 14 CFR Part 77 Primary Surface |
| TERP | TERPS Surfaces |
| TRNS77 | 14 CFR Part 77 Transitional Surfaces |

**5.15.38. CodeOisZoneType**

| Value | Description |
|---|---|
| APPROACH | |
| CONICAL | |
| HORIZONTAL | |
| PRIMARY | |
| TRANSITION | |

**5.15.39. CodeOperationsType**

| Value | Description |
|---|---|
| CIVIL | Civil operations only |
| JOINT | Joint military and civil operations |
| MIL | Military operations only |

**5.15.40. CodeOwner**

| Value | Description |
|---|---|
| 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 |
| K | International Military |
| L | International (U.S. Aid Funds) |
| N | Navy |
| O | Other (Specify In Metadata) |
| P | Private |
| R | Army |
| S | State |
| X | Special |

**5.15.41.CodePointType**

| Value | Description |
|---|---|
| AIRPORT_ELEVATION | Indicates the point of highest elevation on the landing surface of the airport. |
| ARP | Point identified is computed as the Airport reference point for the airport |
| ASOS | Location of the Automated Surface Observing System |
| AWOS | Location of the Aviation Weather Observing System |
| CENTERLINE_POINT | A point collected along the runway centerline whose location is variable based on collection method etc. Typically this point is used for runway profile points. |
| DISPLACED_THRESHOLD | Point provides the location of the displaced threshold for a runway |
| HELIPAD_REFERENCE_POINT | The point defined as the HelipadReferencePoint |
| IMAGERY | Imagery Control Point |
| OTHER | |
| PACS | Point referenced is the airport's Primary Airport Control Station |
| RUNWAY_CONTROL_POINT | Point provides the location and elevation of a specific point on the runway such as the point abeam an offset navaid or the intersection point of two runways defined in this standard as required information. |
| SACS | Point referenced is the airport's Secondary Airport Control Station |
| SAWS | Location of the Stand Alone Weather System |
| SEGMENTED_CIRCLE | Location of the airport segmented circle |
| SPOT_ELEVATION | Spot Elevation Point |
| STOPWAY_END | Point provides the end point for the stopway |
| TDZE | Touchdown Zone Elevation (TDZE) - Indicates the highest point along the runway centerline within the first 3000 feet from the threshold. |
| TEMPORARY_SURVEY_MARK | Temporary Survey Mark |
| VERTICAL_OBJECT | Point reference is a VerticalPointObject not classified by another feature but of possible significance |
| WIND_CONE | Location of the wind cone |

**5.15.42.CodeProjectStatus**

| Value | Description |
|---|---|
| IN_PROGRESS | In progress |
| PLAN_ON_FILE | Indicates a project that is part of a long term (11 + years) plan |
| PLANNED | Indicates a project that is a part of a short term (0 - 5 year) plan |
| PROPOSED | Indicates a project that is part of a midterm (6 - 10 year) plan |

**5.15.43.CodeRecoveredCondition**

| Value | Description |
|---|---|
| Disturbed but not missing | Surface mark destroyed (do not classify a mark as destroyed unless the actual disk is found and returned to the setting agency). |
| Good | Mark recovered in good condition |
| Other | |

| Value | Description |
|---|---|
| Poor | Mark recovered in poor condition and should be considered for replacement |
| Set now (for a first time description) | To identify a condition not available in the list. |
| Surface mark destroyed | Underground mark destroyed (do not classify a mark as destroyed unless the actual disk is found and returned to the setting agency). |
| Underground mark destroyed | Newly established mark |

**5.15.44.CodeRouteType**

| Value | Description |
|---|---|
| ALLEY | Hard-surface or loose-surface narrow street or passageway primarily found between or behind buildings |
| CITY | City or subdivision streets |
| 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 | Fifth Class Unimproved roads passable only with 4-wheel-drive vehicles [USGS, 2001, Part 3: Transportation] |
| FIRSTCLASS | |
| 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 | First Class - 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] |
| JEEPTRAIL | Unimproved roads passable only with 4-wheel-drive vehicles |
| LOCAL | Local jurisdiction roads |
| NATIONAL | First Class - 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]. E.g. U.S. 66 |
| OTHER | Other class of road |
| SECONDCLASS | Second Class 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 |

**5.15.45.CodeRunwayProtectionAreaType**

| Value | Description |
|---|---|
| CWY | Clearway |
| ILS | ILS protection area. Protects ILS signal distortion by forbidding large objects in the area. |
| LIGHT | Light Plane Surface |
| OTHER | Other |
| SNOW | Area protected from snow accumulation |
| STOPWAY | A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off. |
| VGSI | Visual Glide Slope Indicator (VGSI) protection area. Protects VGSI signal coverage by forbidding objects in the area. |

**5.15.46.CodeSamplePointLocation**

| Value | Description |
|---|---|
| AS | Air sample |
| BH | Borehole |
| BIO | Biological sample |
| GWS | Ground water sample |
| OTHER | Other |
| SEDS | Sediment sample |
| SOIL | Soil sample |
| SOLM | Solid material sample |
| SURF | Surface water sample |
| WAS | Waste water sample |
| WL | Well |

**5.15.47.CodeSegmentType**

| Value | Description |
|---|---|
| BEGIN | Beginning section of the segment |
| CONNECTING | Intermediate segments connecting beginning and ending, beginning and intersection, or intersection and end. |
| END | Ending section of the segment |
| INTERSECTION | Defined intersection of multiple segments |

**5.15.48.CodeShorelineType**

| Value | Description |
|---|---|
| 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 |
| MEAN_HIGH_LEVEL | The average limit of dry land during periods of highest water level (for example, high tide |
| MEAN_LOW_LEVEL | The average limit of dry land during periods of lowest water level (for example, low tide |

| Value | Description |
|---|---|
| MEAN_SEA_LEVEL | The arithmetic mean of hourly heights observed over some specified time |

**5.15.49.CodeShoulderType**

| Value | Description |
|---|---|
| O | Other airfield pavement with a shoulder |
| R | Runway |
| T | Taxiway |

**5.15.50.CodeSignTypeCode**

| Value | Description |
|---|---|
| CARGO | Inbound Destination Sign - areas set aside for cargo handling |
| FBO | Inbound Destination Sign - fixed base operator |
| FUEL | Inbound Destination Sign - areas where aircraft are fueled or serviced |
| HOLD_INSTRUMENT_LANDING_SYSTEM | Holding Position Sign for ILS Critical Areas |
| HOLD_RUNWAY_APPROACH | Holding Position Sign for Runway Approach Areas |
| HOLD_RUNWAY_INTERSECTION | Holding Position Sign for Runway/Runway Intersections |
| INFO | Signs installed on the airside of an airport, other than taxiway guidance signs or runway distance remaining signs. |
| MIL | Inbound Destination Sign - areas set aside for military aircraft |
| NO_ENTRY | No Entry Sign |
| OUTBOUND_DESTINATION | Outbound Destination Sign |
| PAX | Inbound Destination Sign - areas set aside for passenger handling |
| ROAD_STOP | Stop sign in areas where vehicle roadways intersect runways or taxiways |
| ROAD_YIELD | Yield sign in areas where vehicle roadways intersect runways or taxiways |
| RSA_RUNWAY_APPROACH | Runway Safety Area/OFZ and Runway Approach Boundary Sign |
| RUNWAY_DISTANCE_REMAINING | Sign that designates the remaining runway distance to pilots during takeoff and landing operations |
| RUNWAY_EXIT | Runway Exit Sign |
| RUNWAY_LOCATION | Runway Location Sign |
| TAXIWAY_DIRECTION | Taxiway Direction Sign |
| TAXIWAY_END | Taxiway Ending Marker |
| TAXIWAY_LOCATION | Taxiway Location Sign |
| TERMINAL | Inbound Destination Sign - gate positions at which aircraft are loaded and unloaded |

**5.15.51.CodeStatus**

| Value | Description |
|---|---|
| ABANDONED | Abandoned |
| ACTIVE | Active surface |
| AIRSPACED | A favorable airspace determination has been issued |
| AS_BUILT | |
| BROKEN | Broken or rough surface |
| CLOSED | Closed surface |
| CONDEMNED | |
| DEMOLISHED | |
| ENV_CLEARED | All required environmental actions and documentation described in FAAO 5050.4 "National Environmental Policy Act (NEPA) have been satisfied |
| FAILED_AID | Failure or irregular operation of visual aides |
| INACTIVE | |
| LIMITED | Limited operations] |
| LONG_TERM | Indicates the feature is part of a long term (11 + years) plan |
| MEDIUM_TERM | Indicates the feature is part of a midterm (6 - 10 year) plan |
| NON_OPERATIONAL | Non-operational |
| OCCUPIED | |
| OPERATIONAL | Operational (fully) |
| OTHER | |
| PARKED | Parked or disabled aircraft |
| PERMANENT | |
| PORTABLE | |
| RELEASED | Used to track land released by the airport |
| S_POWER | Secondary power supply in operation |
| SEMI_PERMANENT | |
| SHORT_TERM | Indicates the feature is part of a short term (0 - 5 year) plan |
| TBD | To be determined |
| TEMPORARY | |
| TERMINATED | Terminated no longer used |
| UNDER_CONSTRUCTION | Planned or under construction |
| UNKNOWN | |
| UNOCCUPIED | |
| WORK_IN_PROGRESS | Construction or work in progress |

**5.15.52.CodeStructureType**

| Value | Description |
|---|---|
| APARTMENT | Apartment building |
| APM_STATION | Automated People Mover station |
| APM_TRACK | Automated People Mover tracks |
| ARENA | Sports Arena or facility |
| ARFF_STATION | Aircraft Rescue and Firefighting station |
| ATC_FACILITY | Combined or Single (other than the airport control tower) Air Traffic Control Facility |
| ATC_TOWER | Air Traffic Control Tower |
| BANK | Bank |
| BARN | barn |

| Value | Description |
|---|---|
| CAPITOL | Capitol |
| CHURCH | church/temple |
| CITY_HALL | City Hall |
| COMMUNITY_CENTER | Community Center |
| CONCERT_HALL | Concert Hall |
| CONDO | condominium |
| COURT_HOUSE | Court House |
| DRY_STORAGE_DOCK | Dry Storage Dock |
| DUPLEX | house, duplex |
| DWELLING | dwelling |
| EARTHWORKS | Earthworks |
| FBO | Fixed Base operator |
| GARAGE | A structure used for the maintenance, storage, and display of motor vehicles |
| GRAIN_ELEVATOR | Grain Elevator |
| HANGAR | A structure used for the maintenance, storage, and display of aircraft |
| HIGHRISE | A multi-story structure with at least 12 floors or 35 meters (115 feet) in height |
| HOSPITAL | Hospital |
| HOUSE | house, single family |
| JAIL_OR_PRISON | Jail or Prison |
| MEDICAL_CENTER | Medical Center |
| MEMORIAL | Memorial |
| MOBILE_HOME | Mobile home or trailer |
| MUSEUM | Museum. |
| OFFICE | office building |
| OFFSHORE_PLATFORM | Offshore Platform |
| OTHER | Other |
| PARKING_GARAGE | Parking garage or facility |
| POLICE | Police Station |
| POST_OFFICE | Post Office |
| POWER_PLANT | A facility used in the production and distribution of electrical power |
| PUBLIC_TRANSPORTATION | Public transportation facility (buses, taxi, etc.) |
| RADIO_FACILITY | Radio Facility |
| RAILROAD_STATION | Railroad Station |
| RAIN_SHED | Rain Shed |
| RENTAL_FACILITY | Rental Car facility |
| SCHOOL | Any building or structure whose primary purpose is education |
| SECURITY | Security Office |
| SKYSCRAPER | Office or housing where the building clearly stands out above its surrounding built environment and significantly changes the overall skyline of that particular city |
| SNOW_SHED | A structure used for the storage, maintenance of Snow removal equipment |
| STORAGE_FACILTIY | A structure used for any type of storage |

| Value | Description |
|---|---|
| TBD | to be determined |
| TERMINAL | Airport Terminal building |
| THEATER | Theater (any type) |
| TOWER | Tower |
| TOWN_HALL | Town Hall |
| TOWNHOUSE | townhouse |
| WATER_TANK | Water Tank |

**5.15.53. CodeSurfaceCondition**

| Value | Description |
|---|---|
| FAIR | Fair condition |
| GOOD | Good condition |
| POOR | Poor condition |
| UNSAFE | Surface is deemed unsafe for operations |
| OTHER | |

**5.15.54. CodeSurfaceMaterial**

| Value | Description |
|---|---|
| AG | Asphalt grooved |
| Ags | Asphalt and turf |
| ANG | Asphalt ungrooved |
| BE | Bare earth |
| CA | Concrete and asphalt |
| CG | Concrete grooved |
| CGS | Concrete and turf |
| CNG | Concrete ungrooved |
| DS | Desert/Sand |
| DT | Dirt |
| EMAS | Engineered Material Arresting System |
| FW | Fresh Water |
| GR | Gravel |
| GS | Turf |
| SI | Snow/Ice |
| SW | Salt Water |
| W | Water |

**5.15.55. CodeSurfaceType**

| Value | Description |
|---|---|
| P | Specially prepared hard surface—Paved |
| S | Specially prepared hard surface—Unpaved |
| U | Not a specially prepared hard surface |

**5.15.56. CodeTaxiwayType**

| Value | Description |
|---|---|
| AIR_TAXIWAY | Air taxiway |
| AIR_TLANE | Air taxilane |
| APRON | Apron taxiway |
| BYPASS | Bypass holding bay |

| Value | Description |
|---|---|
| CROSS_OVER | Crossover taxiway |
| EAT | End Around Taxiway |
| ENTER_EXIT_TAXIWAY | Entrance and Exit taxiway |
| EXIT | Exit/turnoff taxiway |
| FASTEXIT | Rapid exit/turnoff taxiway |
| GATE_TLANE | Gate/stand taxilane |
| GND | Ground taxiway |
| HOLDING | Holding bay |
| INLINE | Inline taxiway |
| OTHER | Those not listed here |
| PARALLEL | Parallel taxiway |
| STUB | Stub taxiway |
| TLANE | Taxilane |
| TURN_AROUND | Turn around taxiway |

**5.15.57.CodeThresholdType**

| Value | Description |
|---|---|
| Displaced | An indication that the landing threshold is located at a point other than the runway end |
| Normal | An indication that the landing threshold corresponds to the end of the runway |

**5.15.58.CodeUseCode**

| Value | Description |
|---|---|
| C | Compass Locator |
| H | High Altitude for VOR/VORTAC/TACAN; All Altitudes for NDB at 50–90 watts |
| HH | All Altitudes for NDB; 2000 watts or more |
| L | Low Altitude |
| MH | All Altitudes for NDB; Under 50 watts |
| T | Terminal |

**5.15.59.CodeUtilityType**

| Value | Description |
|---|---|
| COMMUNICATION_SYSTEM | Telephone, telegraph, cable, video and voice transmission lines |
| COMPRESSED_AIR_SYSTEM | The components of a compressed air system. |
| CONTROL_MONITORING_SYSTEM | The components of an electronic monitoring and control system (EMCS) including cables, devices, etc. |
| ELECTRICAL_EXT_LIGHT | The components of an electrical exterior lighting system including cables, switches, devices, transformers, etc. Does not include airfield, NAVAID or approach lighting. |
| ELECTRICAL_SYSTEM | The components of an electrical distribution system including cables, switches, devices, motors, transformers, etc. |
| FUEL_SYSTEM | The components of a fuel distribution system consisting of pipes, fittings, fixtures, pumps, tanks, etc. |

| Value | Description |
|---|---|
| GENERAL_UTILITY | The components of utility system which are universal in use and purpose and do not belong to a specific utility. |
| HEAT_COOL_SYSTEM | The components of a heating and cooling distribution system consisting of pipes, fittings, fixtures, etc. |
| INDUSTRIAL_SYSTEM | The components of an industrial waste collection system including pipes, fittings, fixtures, tanks, lagoons, etc. |
| NATURAL_GAS_SYSTEM | The components of a natural gas distribution system consisting of pipes, fittings, fixtures, etc. |
| NUCLEAR_REACTOR | The components of a nuclear system such as nuclear fuel, Nuclear research, nuclear waste, and nuclear weapons. |
| POWER_SYSTEM | Power transmission lines |
| SALTWATER_SYSTEM | The components of a salt water collection system. |
| STORM_SYSTEM | The components of a storm drainage collection system including pipes, fittings, fixtures, etc. |
| TRANSMISSION_LINE | Objects related to the long distance transmission of gas, oil, or hazardous liquid. |
| WASTEWATER_SYSTEM | The components of a wastewater collection system including pipes, fittings, fixtures, treatment plants, collection locations, etc. |
| WATER_SYSTEM | The components of a water system including pipes, fittings, fixtures, treatment plants, etc. |

**5.15.60.CodeVerticalStructureMaterial**

| Value | Description |
|---|---|
| COMPOSITION | Composition |
| CONCRETE | Concrete |
| METAL | Metal |
| ROCK | Rock |
| STONE_BRICK | Stone/brick |
| WOOD | Wood |

**5.15.61.CodeZoneType**

| Value | Description |
|---|---|
| 5_YEAR | Areas subject to 5 year flooding. |
| 10_YEAR | Areas subject to 10 year flooding. |
| 15_YEAR | Areas subject to 15 year flooding. |
| 25_YEAR | Areas subject to 25 year flooding. |
| 50_YEAR | Areas subject to 50 year flooding. |
| 100_YEAR | Areas subject to 100 year flooding. |
| 500_YEAR | Areas subject to 500 year flooding. |
| GENERAL | Areas prone to flooding in general. |
| PROJECTED | Areas expected to be subject to flooding in the future. |
| OTHER | Other |

**5.15.62.CodeZoningClass**

| Value | Description |
|---|---|
| COMMERCIAL | Areas which are zoned for merchandising, shopping, or other commercial development. (Source SDSFIE) |
| INDUSTRIAL | Areas which are zoned for factory, manufacturing, or other industrial development. (Source SDSFIE) |
| QUASI_PUBLIC | Areas which are zoned public although under private ownership or control. (Source SDSFIE) |
| RESIDENTIAL | Areas which are zoned for housing or residential development. (Source SDSFIE) |
| OTHER | Other Zoning |

**Intentionally left blank.**