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	
Sensitivity	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: codeLightingType)	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 (Integer2)	Discriminator used to tie features of a plan or poroposal 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)	
Sensitivity	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 (Integer2)	Discriminator used to tie features of a plan or poroposal 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

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

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

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

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

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

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

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

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

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)	
Sensitivity	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	

	Horizontal		**Vertical**	
			Orthometric	**Ellipsoidal**
Accuracy Requirements (in feet)	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 (Integer2)	Discriminator used to tie features of a plan or poroposal 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)	
Sensitivity	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 (Integer2)	Discriminator used to tie features of a plan or poroposal 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. CodeAirportFacilityType

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

5.15.2. 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

5.15.3. 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

5.15.4. CodeApronType

Value	Description
RAMP	Access pavement between maintenance hangars opening to the apron and the apron edge
NORMAL	Apron
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
HARDSTAND	Area used for parking a single aircraft. More temporary than parking
MAINT	Area used for maintenance of aircraft
PARKING	Area used to park aircraft

Value	Description
LOADING	Passenger loading area used for the loading/unloading of passengers
TURNAROUND	Area used for aircraft to turn around
MILITARY	Apron used by military
TAXILANE	Area where plane is still under terminal control (airline dispatched) as opposed to tower control.
TEMPORARY	Temporary
STAIRS (Stairs)	Stairs
OTHER (Other)	Other

5.15.5. CodeBridgeType

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

5.15.6. CodeBuoyType

Value	Description
269BBn	Beacon
Lb	Lighted buoy
C	Can Buoy
F	Fixed
J	Junction (S or T Dayboard)
K	Rectangular (Range Dayboard)
M	Octagonal Dayboard
N	Nun Buoy
O	Other marking
S	Square Dayboard
T	Triangle Dayboard

5.15.7. 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

5.15.8. 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]

Value	Description
GREY	Grey [U.S. CADD]
LIGHTGREY	LightGrey [U.S. CADD]
MAGENTA	Magenta [U.S. CADD]
ORANGE	Orange [U.S. CADD]
OTHER	Other [U.S. CADD]
PINK	Pink [U.S. CADD]
PURPLE	Purple [AIXM]
RED	Red [U.S. CADD]
TBD	To be determined
VIOLET	Violet [U.S. CADD]
WHITE	White [U.S. CADD]
YELLOW	Yellow [U.S. CADD]

5.15.9. CodeCompassLocation

Value	Description
N	North (346 to 015° magnetic)
NNE	North Northeast (016 to 045° magnetic)
NE	Northeast (046 to 075° magnetic)
E	East (076 to 105° magnetic)
ESE	East Southeast (106 to 135° magnetic)
SE	Southeast (136 to 165° magnetic)
S	South (166 to 195° 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)
NW	Northwest (316 to 345° magnetic)

5.15.10. CodeCoordinatedUseType

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

5.15.11. CodeCoordinateZone

Value	Description
AK-10	NAD27 Alaska State Planes- Zone 10- US Foot (EPSG #26740)
AK-1	NAD27 Alaska State Planes- Zone 1- US Foot (EPSG #26731)
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)
AK-9	NAD27 Alaska State Planes- Zone 9- US Foot (EPSG #26739)

Value	Description
AK83-10F	NAD83 Alaska State Planes- Zone 10- US Foot
AK83-10	NAD83 Alaska State Planes- Zone 10- Meter (EPSG #26940)
AK83-1F	NAD83 Alaska State Planes- Zone 1- US Foot
AK83-1	NAD83 Alaska State Planes- Zone 1- Meter (EPSG #26931)
AK83-2F	NAD83 Alaska State Planes- Zone 2- US Foot
AK83-2	NAD83 Alaska State Planes- Zone 2- Meter (EPSG #26932)
AK83-3F	NAD83 Alaska State Planes- Zone 3- US Foot
AK83-3	NAD83 Alaska State Planes- Zone 3- Meter (EPSG #26933)
AK83-4F	NAD83 Alaska State Planes- Zone 4- US Foot
AK83-4	NAD83 Alaska State Planes- Zone 4- Meter (EPSG #26934)
AK83-5F	NAD83 Alaska State Planes- Zone 5- US Foot
AK83-5	NAD83 Alaska State Planes- Zone 5- Meter (EPSG #26935)
AK83-6F	NAD83 Alaska State Planes- Zone 6- US Foot
AK83-6	NAD83 Alaska State Planes- Zone 6- Meter (EPSG #26936)
AK83-7F	NAD83 Alaska State Planes- Zone 7- US Foot
AK83-7	NAD83 Alaska State Planes- Zone 7- Meter (EPSG #26937)
AK83-8F	NAD83 Alaska State Planes- Zone 8- US Foot
AK83-8	NAD83 Alaska State Planes- Zone 8- Meter (EPSG #26938)
AK83-9F	NAD83 Alaska State Planes- Zone 9- US Foot
AK83-9	NAD83 Alaska State Planes- Zone 9- Meter (EPSG #26939)
AL-E	NAD27 Alabama State Planes- Eastern Zone- US Foot (EPSG #26729)
AL-W	NAD27 Alabama State Planes- Western Zone- US Foot (EPSG #26730)
AL83-EF	NAD83 Alabama State Planes- Eastern Zone- US Foot
AL83-E	NAD83 Alabama State Planes- Eastern Zone- Meter (EPSG #26929)
AL83-WF	NAD83 Alabama State Planes- Western Zone- US Foot
AL83-W	NAD83 Alabama State Planes- Western Zone- Meter (EPSG #26930)
ALHP-EF	HPGN Alabama State Planes- Eastern Zone- US Foot
ALHP-E	HPGN Alabama State Planes- Eastern Zone- Meter (EPSG #2759)
ALHP-WF	HPGN Alabama State Planes- Western Zone- US Foot
ALHP-W	HPGN Alabama State Planes- Western Zone- Meter (EPSG #2760)
AR-N	NAD27 Arkansas State Planes- Northern Zone- US Foot (EPSG #26751)
AR-S	NAD27 Arkansas State Planes- Southern Zone- US Foot (EPSG #26752)
AR83-NF	NAD83 Arkansas State Planes- Northern Zone- US Foot
AR83-N	NAD83 Arkansas State Planes- Northern Zone- Meter (EPSG #26951)
AR83-SF	NAD83 Arkansas State Planes- Southern Zone- US Foot
AR83-S	NAD83 Arkansas State Planes- Southern Zone- Meter (EPSG #26952)
ARHP-NF	HARN (HPGN) Arkansas State Planes- Northern Zone- US Foot
ARHP-N	HARN (HPGN) Arkansas State Planes- Northern Zone- Meter (EPSG #2764)
ARHP-SF	HARN (HPGN) Arkansas State Planes- Southern Zone- US Foot
ARHP-S	HARN (HPGN) Arkansas State Planes- Southern Zone- Meter (EPSG #2765)
AZ-C	NAD27 Arizona State Planes- Central Zone- US Foot (EPSG #26749)
AZ-E	NAD27 Arizona State Planes- East Zone- US Foot (EPSG #26748)
AZ-W	NAD27 Arizona State Planes- West Zone- US Foot (EPSG #26750)
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-C	NAD83 Arizona State Planes- Central Zone- Meter (EPSG #26949)

Value	Description
AZ83-EF	NAD83 Arizona State Planes- East Zone- US Foot
AZ83-EIF	NAD83 Arizona State Planes- East Zone- Intnl Foot (EPSG #2222)
AZ83-E	NAD83 Arizona State Planes- East Zone- Meter (EPSG #26948)
AZ83-WF	NAD83 Arizona State Planes- West Zone- US Foot
AZ83-WIF	NAD83 Arizona State Planes- West Zone- Intnl Foot (EPSG #2224)
AZ83-W	NAD83 Arizona State Planes- West Zone- Meter (EPSG #26950)
AZHP-CF	HPGN Arizona State Planes- Central Zone- US Foot
AZHP-CIF	HPGN Arizona State Planes- Central Zone- Intnl Foot (EPSG #2868)
AZHP-C	HPGN Arizona State Planes- Central Zone- Meter (EPSG #2762)
AZHP-EF	HPGN Arizona State Planes- East Zone- US Foot
AZHP-EIF	HPGN Arizona State Planes- East Zone- Intnl Foot (EPSG #2867)
AZHP-E	HPGN Arizona State Planes- East Zone- Meter (EPSG #2761)
AZHP-WF	HPGN Arizona State Planes- West Zone- US Foot
AZHP-WIF	HPGN Arizona State Planes- West Zone- Intnl Foot (EPSG #2869)
AZHP-W	HPGN Arizona State Planes- West Zone- Meter (EPSG #2763)
CA-III	NAD27 California State Planes- Zone III- US Foot (EPSG #26743)
CA-II	NAD27 California State Planes- Zone II- US Foot (EPSG #26742)
CA-IV	NAD27 California State Planes- Zone IV- US Foot (EPSG #26744)
CA-I	NAD27 California State Planes- Zone I- US Foot (EPSG #26741)
CA-VII	NAD27 California State Planes- Zone VII- US Foot (EPSG #26747)
CA-VI	NAD27 California State Planes- Zone VI- US Foot (EPSG #26746)
CA-V	NAD27 California State Planes- Zone V- US Foot (EPSG #26745)
CA83-IF	NAD83 California State Planes- Zone I- US Foot (EPSG #2225)
CA83-IIF	NAD83 California State Planes- Zone II- US Foot (EPSG #2226)
CA83-III	NAD83 California State Planes- Zone III- Meter (EPSG #26943)
CA83-II	NAD83 California State Planes- Zone II- Meter (EPSG #26942)
CA83-IVF	NAD83 California State Planes- Zone IV- US Foot (EPSG #2228)
CA83-IV	NAD83 California State Planes- Zone IV- Meter (EPSG #26944)
CA83-I	NAD83 California State Planes- Zone I- Meter (EPSG #26941)
CA83-VF	NAD83 California State Planes- Zone V- US Foot (EPSG #2229)
CA83-VIF	NAD83 California State Planes- Zone VI- US Foot (EPSG #2230)
CA83-VI	NAD83 California State Planes- Zone VI- Meter (EPSG #26946)
CA83-V	NAD83 California State Planes- Zone V- Meter (EPSG #26945)
CA83IIIF	NAD83 California State Planes- Zone III- US Foot (EPSG #2227)
CAHP-IF	HPGN California State Planes- Zone I- US Foot (EPSG #2870)
CAHP-IIF	HPGN California State Planes- Zone II- US Foot (EPSG #2871)
CAHP-III	HPGN California State Planes- Zone III- Meter (EPSG #2768)
CAHP-II	HPGN California State Planes- Zone II- Meter (EPSG #2767)
CAHP-IVF	HPGN California State Planes- Zone IV- US Foot (EPSG #2873)
CAHP-IV	HPGN California State Planes- Zone IV- Meter (EPSG #2769)
CAHP-I	HPGN California State Planes- Zone I- Meter (EPSG #2766)
CAHP-VF	HPGN California State Planes- Zone V- US Foot (EPSG #2874)
CAHP-VIF	HPGN California State Planes- Zone VI- US Foot (EPSG #2875)
CAHP-VI	HPGN California State Planes- Zone VI- Meter (EPSG #2771)
CAHP-V	HPGN California State Planes- Zone V- Meter (EPSG #2770)
CAHPIIIF	HPGN California State Planes- Zone III- US Foot (EPSG #2872)
CO-C	NAD27 Colorado State Planes- Central Zone- US Foot (EPSG #26754)

Value	Description
CO-N	NAD27 Colorado State Planes- Northern Zone- US Foot (EPSG #26753)
CO-S	NAD27 Colorado State Planes- Southern Zone- US Foot (EPSG #26755)
CO83-CF	NAD83 Colorado State Planes- Central Zone- US Foot (EPSG #2232)
CO83-C	NAD83 Colorado State Planes- Central Zone- Meter (EPSG #26954)
CO83-NF	NAD83 Colorado State Planes- Northern Zone- US Foot (EPSG #2231)
CO83-N	NAD83 Colorado State Planes- Northern Zone- Meter (EPSG #26953)
CO83-SF	NAD83 Colorado State Planes- Southern Zone- US Foot (EPSG #2233)
CO83-S	NAD83 Colorado State Planes- Southern Zone- Meter (EPSG #26955)
COHP-CF	HPGN Colorado State Planes- Central Zone- US Foot (EPSG #2877)
COHP-C	HPGN Colorado State Planes- Central Zone- Meter (EPSG #2773)
COHP-NF	HPGN Colorado State Planes- Northern Zone- US Foot (EPSG #2876)
COHP-N	HPGN Colorado State Planes- Northern Zone- Meter (EPSG #2772)
COHP-SF	HPGN Colorado State Planes- Southern Zone- US Foot (EPSG #2878)
COHP-S	HPGN Colorado State Planes- Southern Zone- Meter (EPSG #2774)
CT83F	NAD83 Connecticut State Plane Zone- US Foot (EPSG #2234)
CT83	NAD83 Connecticut State Plane Zone- Meter (EPSG #26956)
CTHPF	HPGN/HARN Connecticut State Plane Zone- US Foot (EPSG #2879)
CTHP	HPGN/HARN Connecticut State Plane Zone- Meter (EPSG #2775)
CT	NAD27 Connecticut State Plane Zone- US Foot (EPSG #26756)
DE83F	NAD83 Delaware State Planes- US Foot (EPSG #2235)
DE83	NAD83 Delaware State Planes- Meter (EPSG #26957)
DEHPF	HPGN Delaware State Planes- US Foot (EPSG #2880)
DEHP	HPGN Delaware State Planes- Meter (EPSG #2776)
DE	NAD27 Delaware State Planes- US Foot (EPSG #26757)
FL-E	NAD27 Florida State Planes- Eastern Zone- US Foot (EPSG #26758)
FL-N	NAD27 Florida State Planes- Northern Zone- US Foot (EPSG #26760)
FL-W	NAD27 Florida State Planes- Western Zone- US Foot (EPSG #26759)
FL83-EF	NAD83 Florida State Planes- Eastern Zone- US Foot (EPSG #2236)
FL83-E	NAD83 Florida State Planes- Eastern Zone- Meter (EPSG #26958)
FL83-NF	NAD83 Florida State Planes- Northern Zone- US Foot (EPSG #2238)
FL83-N	NAD83 Florida State Planes- Northern Zone- Meter (EPSG #26960)
FL83-WF	NAD83 Florida State Planes- Western Zone- US Foot (EPSG #2237)
FL83-W	NAD83 Florida State Planes- Western Zone- Meter (EPSG #26959)
FLHP-EF	HPGN Florida State Planes- Eastern Zone- US Foot (EPSG #2881)
FLHP-E	HPGN Florida State Planes- Eastern Zone- Meter (EPSG #2777)
FLHP-NF	HPGN Florida State Planes- Northern Zone- US Foot (EPSG #2883)
FLHP-N	HPGN Florida State Planes- Northern Zone- Meter (EPSG #2779)
FLHP-WF	HPGN Florida State Planes- Western Zone- US Foot (EPSG #2882)
FLHP-W	HPGN Florida State Planes- Western Zone- Meter (EPSG #2778)
GA-E	NAD27 Georgia State Planes- Eastern Zone- US Foot (EPSG #26766)
GA-W	NAD27 Georgia State Planes- Western Zone- US Foot (EPSG #26767)
GA83-EF	NAD83 Georgia State Planes- Eastern Zone- US Foot (EPSG #2239)
GA83-E	NAD83 Georgia State Planes- Eastern Zone- Meter (EPSG #26966)
GA83-WF	NAD83 Georgia State Planes- Western Zone- US Foot (EPSG #2240)
GA83-W	NAD83 Georgia State Planes- Western Zone- Meter (EPSG #26967)
GAHP-EF	HARN (HPGN) Georgia State Planes- Eastern Zone- US Foot (EPSG #2884)
GAHP-E	HARN (HPGN) Georgia State Planes- Eastern Zone- Meter (EPSG #2780)

Value	Description
GAHP-WF	HARN (HPGN) Georgia State Planes- Western Zone- US Foot (EPSG #2885)
GAHP-W	HARN (HPGN) Georgia State Planes- Western Zone- Meter (EPSG #2781)
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
HI83-1F	NAD83 Hawaii State Planes- Zone 1- US Foot
HI83-1	NAD83 Hawaii State Planes- Zone 1- Meter (EPSG #26961)
HI83-2F	NAD83 Hawaii State Planes- Zone 2- US Foot
HI83-2	NAD83 Hawaii State Planes- Zone 2- Meter (EPSG #26962)
HI83-3F	NAD83 Hawaii State Planes- Zone 3- US Foot
HI83-3	NAD83 Hawaii State Planes- Zone 3- Meter (EPSG #26963)
HI83-4F	NAD83 Hawaii State Planes- Zone 4- US Foot
HI83-4	NAD83 Hawaii State Planes- Zone 4- Meter (EPSG #26964)
HI83-5F	NAD83 Hawaii State Planes- Zone 5- US Foot
HI83-5	NAD83 Hawaii State Planes- Zone 5- Meter (EPSG #26965)
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)
IA-N	NAD27 Iowa State Planes- Northern Zone- US Foot (EPSG #26775)
IA-S	NAD27 Iowa State Planes- Southern Zone- US Foot (EPSG #26776)
IA83-NF	NAD83 Iowa State Planes- Northern Zone- US Foot
IA83-N	NAD83 Iowa State Planes- Northern Zone- Meter (EPSG #26975)
IA83-SF	NAD83 Iowa State Planes- Southern Zone- US Foot
IA83-S	NAD83 Iowa State Planes- Southern Zone- Meter (EPSG #26976)
IAHP-NF	HARN (HPGN) Iowa State Planes- Northern Zone- US Foot
IAHP-N	HARN (HPGN) Iowa State Planes- Northern Zone- Meter (EPSG #2794)
IAHP-SF	HARN (HPGN) Iowa State Planes- Southern Zone- US Foot
IAHP-S	HARN (HPGN) Iowa State Planes- Southern Zone- Meter (EPSG #2795)
ID-C	NAD27 Idaho State Planes- Central Zone- US Foot (EPSG #26769)
ID-E	NAD27 Idaho State Planes- Eastern Zone- US Foot (EPSG #26768)
ID-W	NAD27 Idaho State Planes- Western Zone- US Foot (EPSG #26770)
ID83-CF	NAD83 Idaho State Planes- Central Zone- US Foot (EPSG #2242)
ID83-C	NAD83 Idaho State Planes- Central Zone- Meter (EPSG #26969)
ID83-EF	NAD83 Idaho State Planes- Eastern Zone- US Foot (EPSG #2241)
ID83-E	NAD83 Idaho State Planes- Eastern Zone- Meter (EPSG #26968)
ID83-WF	NAD83 Idaho State Planes- Western Zone- US Foot (EPSG #2243)
ID83-W	NAD83 Idaho State Planes- Western Zone- Meter (EPSG #26970)
IDHP-CF	HARN (HPGN) Idaho State Planes- Central Zone- US Foot (EPSG #2887)
IDHP-C	HARN (HPGN) Idaho State Planes- Central Zone- Meter (EPSG #2788)
IDHP-EF	HARN (HPGN) Idaho State Planes- Eastern Zone- US Foot (EPSG #2886)
IDHP-E	HARN (HPGN) Idaho State Planes- Eastern Zone- Meter (EPSG #2787)
IDHP-WF	HARN (HPGN) Idaho State Planes- Western Zone- US Foot (EPSG #2888)
IDHP-W	HARN (HPGN) Idaho State Planes- Western Zone- Meter (EPSG #2789)

Value	Description
IL-E	NAD27 Illinois State Planes- Eastern Zone- US Foot (EPSG #26771)
IL-W	NAD27 Illinois State Planes- Western Zone- US Foot (EPSG #26772)
IL83-EF	NAD83 Illinois State Planes- Eastern Zone- US Foot
IL83-E	NAD83 Illinois State Planes- Eastern Zone- Meter (EPSG #26971)
IL83-WF	NAD83 Illinois State Planes- Western Zone- US Foot
IL83-W	NAD83 Illinois State Planes- Western Zone- Meter (EPSG #26972)
ILHP-EF	HARN (HPGN) Illinois State Planes- Eastern Zone- US Foot
ILHP-E	HARN (HPGN) Illinois State Planes- Eastern Zone- Meter (EPSG #2790)
ILHP-WF	HARN (HPGN) Illinois State Planes- Western Zone- US Foot
ILHP-W	HARN (HPGN) Illinois State Planes- Western Zone- Meter (EPSG #2791)
ILLIMAP	NAD27 Illinois Survey Mapping System- US Foot
IN-E	NAD27 Indiana State Planes- Eastern Zone- US Foot (EPSG #26773)
IN-W	NAD27 Indiana State Planes- Western Zone- US Foot (EPSG #26774)
IN83-EF	NAD83 Indiana State Planes- Eastern Zone- US Foot (EPSG #2244)
IN83-E	NAD83 Indiana State Planes- Eastern Zone- Meter (EPSG #26973)
IN83-WF	NAD83 Indiana State Planes- Western Zone- US Foot (EPSG #2245)
IN83-W	NAD83 Indiana State Planes- Western Zone- Meter (EPSG #26974)
INHP-EF	HARN (HPGN) Indiana State Planes- Eastern Zone- US Foot (EPSG #2889)
INHP-E	HARN (HPGN) Indiana State Planes- Eastern Zone- Meter (EPSG #2792)
INHP-WF	HARN (HPGN) Indiana State Planes- Western Zone- US Foot (EPSG #2890)
INHP-W	HARN (HPGN) Indiana State Planes- Western Zone- Meter (EPSG #2793)
KS-N	NAD27 Kansas State Planes- Northern Zone- US Foot (EPSG #26777)
KS-S	NAD27 Kansas State Planes- Southern Zone- US Foot (EPSG #26778)
KS83-NF	NAD83 Kansas State Planes- Northern Zone- US Foot
KS83-N	NAD83 Kansas State Planes- Northern Zone- Meter (EPSG #26977)
KS83-SF	NAD83 Kansas State Planes- Southern Zone- US Foot
KS83-S	NAD83 Kansas State Planes- Southern Zone- Meter (EPSG #26978)
KSHP-NF	HARN (HPGN) Kansas State Planes- Northern Zone- US Foot
KSHP-N	HARN (HPGN) Kansas State Planes- Northern Zone- Meter (EPSG #2796)
KSHP-SF	HARN (HPGN) Kansas State Planes- Southern Zone- US Foot
KSHP-S	HARN (HPGN) Kansas State Planes- Southern Zone- Meter (EPSG #2797)
KY-N	NAD27 Kentucky State Planes- Northern Zone- US Foot (EPSG #26779)
KY-S	NAD27 Kentucky State Planes- Southern Zone- US Foot (EPSG #26780)
KY83-NF	NAD83 Kentucky State Planes- Northern Zone- US Foot (EPSG #2246)
KY83-N	NAD83 Kentucky State Planes- Northern Zone- Meter (EPSG #26979)
KY83-SF	NAD83 Kentucky State Planes- Southern Zone- US Foot (EPSG #2247)
KY83-S	NAD83 Kentucky State Planes- Southern Zone- Meter (EPSG #26980)
KYHP-NF	HPGN Kentucky State Planes- Northern Zone- US Foot (EPSG #2891)
KYHP-N	HPGN Kentucky State Planes- Northern Zone- Meter (EPSG #2798)
KYHP-SF	HPGN Kentucky State Planes- Southern Zone- US Foot (EPSG #2892)
KYHP-S	HPGN Kentucky State Planes- Southern Zone- Meter (EPSG #2799)
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)
LA83-NF	NAD83 Louisiana State Planes- Northern Zone- US Foot
LA83-N	NAD83 Louisiana State Planes- Northern Zone- Meter (EPSG #26981)
LA83-OF	NAD83 Louisiana State Planes- Offshore- US Foot

Value	Description
LA83-O	NAD83 Louisiana State Planes- Offshore- Meter (EPSG #32199)
LA83-SF	NAD83 Louisiana State Planes- Southern Zone- US Foot
LA83-S	NAD83 Louisiana State Planes- Southern Zone- Meter (EPSG #26982)
LAHP-NF	HPGN Louisiana State Planes- Northern Zone- US Foot
LAHP-N	HPGN Louisiana State Planes- Northern Zone- Meter (EPSG #2800)
LAHP-OF	HPGN Louisiana State Planes- Offshore- US Foot
LAHP-O	HPGN Louisiana State Planes- Offshore- Meter
LAHP-SF	HPGN Louisiana State Planes- Southern Zone- US Foot
LAHP-S	HPGN Louisiana State Planes- Southern Zone- Meter (EPSG #2801)
LL-83	NAD83 Latitude/Longitude- Degrees
LL84	WGS84 Lat/Long- Degrees- -180 ==> +180 (EPSG #4326)
MA27-IS	NAD27 Massachusetts State Planes- Island Zone- US Foot (EPSG #26787)
MA83-ISF	NAD83 Massachusetts State Planes- Island Zone- US Foot (EPSG #2250)
MA83-IS	NAD83 Massachusetts State Planes- Island Zone- Meter (EPSG #26987)
MA83F	NAD83 Massachusetts State Planes- Mainland Zone- US Foot (EPSG #2249)
MA83	NAD83 Massachusetts State Planes- Mainland Zone- Meter (EPSG #26986)
MAHP-ISF	HPGN/HARN Massachusetts State Planes- Island Zone- US Foot (EPSG #2895)
MAHP-IS	HPGN/HARN Massachusetts State Planes- Island Zone- Meter (EPSG #2806)
MAHPF	HPGN/HARN Massachusetts State Planes- Mainland Zone- US Foot (EPSG #2894)
MAHP	HPGN/HARN Massachusetts State Planes- Mainland Zone- Meter (EPSG #2805)
MA	NAD27 Massachusetts State Planes- Mainland Zone- US Foot (EPSG #26786)
MD83F	NAD83 Maryland State Plane Zone- US Foot (EPSG #2248)
MD83	NAD83 Maryland State Plane Zone- Meter (EPSG #26985)
MDHPF	HPGN Maryland State Plane Zone- US Foot (EPSG #2893)
MDHP	HPGN Maryland State Plane Zone- Meter (EPSG #2804)
MD	NAD27 Maryland State Plane Zone- US Foot (EPSG #26785)
ME-E	NAD27 Maine State Planes- Eastern Zone- US Foot (EPSG #26783)
ME-W	NAD27 Maine State Planes- Western Zone- US Foot (EPSG #26784)
ME83-EF	NAD83 Maine State Planes- Eastern Zone- US Foot
ME83-E	NAD83 Maine State Planes- Eastern Zone- Meter (EPSG #26983)
ME83-WF	NAD83 Maine State Planes- Western Zone- US Foot
ME83-W	NAD83 Maine State Planes- Western Zone- Meter (EPSG #26984)
MEHP-EF	HPGN Maine State Planes- Eastern Zone- US Foot
MEHP-E	HPGN Maine State Planes- Eastern Zone- Meter (EPSG #2802)
MEHP-WF	HPGN Maine State Planes- Western Zone- US Foot
MEHP-W	HPGN Maine State Planes- Western Zone- Meter (EPSG #2803)
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-CF	NAD83 Michigan State Planes- Central Zone- US Foot
MI83-CIF	NAD83 Michigan State Planes- Central Zone- Intnl Foot (EPSG #2252)
MI83-C	NAD83 Michigan State Planes- Central Zone- Meter (EPSG #26989)
MI83-NF	NAD83 Michigan State Planes- Northern Zone- US Foot
MI83-NIF	NAD83 Michigan State Planes- Northern Zone- Intnl Foot (EPSG #2251)
MI83-N	NAD83 Michigan State Planes- Northern Zone- Meter (EPSG #26988)

Value	Description
MI83-SF	NAD83 Michigan State Planes- Southern Zone- US Foot
MI83-SIF	NAD83 Michigan State Planes- Southern Zone- Intnl Foot (EPSG #2253)
MI83-S	NAD83 Michigan State Planes- Southern Zone- Meter (EPSG #26990)
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-C	HARN (HPGN) Michigan State Planes- Central Zone- Meter (EPSG #2808)
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-N	HARN (HPGN) Michigan State Planes- Northern Zone- Meter (EPSG #2807)
MIHP-SF	HARN (HPGN) Michigan State Planes- Southern Zone- US Foot
MIHP-SIF	HARN (HPGN) Michigan State Planes- Southern Zone- Intnl Foot (EPSG #2898)
MIHP-S	HARN (HPGN) Michigan State Planes- Southern Zone- Meter (EPSG #2809)
MN-C	NAD27 Minnesota State Planes- Central Zone- US Foot (EPSG #26792)
MN-N	NAD27 Minnesota State Planes- Northern Zone- US Foot (EPSG #26791)
MN-S	NAD27 Minnesota State Planes- South- US Foot (EPSG #26793)
MN83-CF	NAD83 Minnesota State Planes- Central Zone- US Foot
MN83-C	NAD83 Minnesota State Planes- Central Zone- Meter (EPSG #26992)
MN83-NF	NAD83 Minnesota State Planes- Northern Zone- US Foot
MN83-N	NAD83 Minnesota State Planes- Northern Zone- Meter (EPSG #26991)
MN83-SF	NAD83 Minnesota State Planes- South Zone- US Foot
MN83-S	NAD83 Minnesota State Planes- South Zone- Meter (EPSG #26993)
MNHP-CF	HARN (HPGN) Minnesota State Planes- Central Zone- US Foot
MNHP-C	HARN (HPGN) Minnesota State Planes- Central Zone- Meter (EPSG #2811)
MNHP-NF	HARN (HPGN) Minnesota State Planes- Northern Zone- US Foot
MNHP-N	HARN (HPGN) Minnesota State Planes- Northern Zone- Meter (EPSG #2810)
MNHP-SF	HARN (HPGN) Minnesota State Planes- South Zone- US Foot
MNHP-S	HARN (HPGN) Minnesota State Planes- South Zone- Meter (EPSG #2812)
MO-C	NAD27 Missouri State Planes- Central Zone- US Foot (EPSG #26797)
MO-E	NAD27 Missouri State Planes- Eastern Zone- US Foot (EPSG #26796)
MO-W	NAD27 Missouri State Planes- Western Zone- US Foot (EPSG #26798)
MO83-CF	NAD83 Missouri State Planes- Central Zone- US Foot
MO83-C	NAD83 Missouri State Planes- Central Zone- Meter (EPSG #26997)
MO83-EF	NAD83 Missouri State Planes- Eastern Zone- US Foot
MO83-E	NAD83 Missouri State Planes- Eastern Zone- Meter (EPSG #26996)
MO83-WF	NAD83 Missouri State Planes- Western Zone- US Foot
MO83-W	NAD83 Missouri State Planes- Western Zone- Meter (EPSG #26998)
MOHP-CF	HARN (HPGN) Missouri State Planes- Central Zone- US Foot
MOHP-C	HARN (HPGN) Missouri State Planes- Central Zone- Meter (EPSG #2816)
MOHP-EF	HARN (HPGN) Missouri State Planes- Eastern Zone- US Foot
MOHP-E	HARN (HPGN) Missouri State Planes- Eastern Zone- Meter (EPSG #2815)
MOHP-WF	HARN (HPGN) Missouri State Planes- Western Zone- US Foot
MOHP-W	HARN (HPGN) Missouri State Planes- Western Zone- Meter (EPSG #2817)
MS-E	NAD27 Mississippi State Planes- Eastern Zone- US Foot (EPSG #26794)
MS-W	NAD27 Mississippi State Planes- Western Zone- US Foot (EPSG #26795)
MS83-EF	NAD83 Mississippi State Planes- Eastern Zone- US Foot (EPSG #2254)

Value	Description
MS83-E	NAD83 Mississippi State Planes- Eastern Zone- Meter (EPSG #26994)
MS83-TM	NAD83 Mississippi Transverse Mercator Projection (meters)
MS83-WF	NAD83 Mississippi State Planes- Western Zone- US Foot (EPSG #2255)
MS83-W	NAD83 Mississippi State Planes- Western Zone- Meter (EPSG #26995)
MSHP-EF	HPGN Mississippi State Planes- Eastern Zone- US Foot (EPSG #2899)
MSHP-E	HPGN Mississippi State Planes- Eastern Zone- Meter (EPSG #2813)
MSHP-WF	HPGN Mississippi State Planes- Western Zone- US Foot (EPSG #2900)
MSHP-W	HPGN Mississippi State Planes- Western Zone- Meter (EPSG #2814)
MT-C	NAD27 Montana State Planes- Central Zone- US Foot (EPSG #32002)
MT-N	NAD27 Montana State Planes- Northern Zone- US Foot (EPSG #32001)
MT-S	NAD27 Montana State Planes- Southern Zone- US Foot (EPSG #32003)
MT83F	NAD83 Montana State Plane Zone- US Foot
MT83IF	NAD83 Montana State Planes- Intnl Foot (EPSG #2256)
MT83	NAD83 Montana State Plane Zone- Meter (EPSG #32100)
MTHPF	HPGN Montana State Plane Zone- US Foot
MTHPIF	HPGN Montana State Planes- Intnl Foot (EPSG #2901)
MTHP	HPGN Montana State Plane Zone- Meter (EPSG #2818)
NB-N	NAD27 Nebraska State Planes- Northern Zone- US Foot (EPSG #32005)
NB-S	NAD27 Nebraska State Planes- Southern Zone- US Foot (EPSG #32006)
NB83F	NAD83 Nebraska State Planes- US Foot
NB83	NAD83 Nebraska State Planes- Meter (EPSG #32104)
NBHPF	HPGN/HARN Nebraska State Planes- US Foot
NBHP	HPGN/HARN Nebraska State Planes- Meter (EPSG #2819)
NC83F	NAD83 North Carolina State Planes- US Foot (EPSG #2264)
NC83	NAD83 North Carolina State Planes- Meter (EPSG #32119)
NCHPF	HARN (HPGN) North Carolina State Planes- US Foot
NCHP	HARN (HPGN) North Carolina State Planes- Meter
NC	NAD27 North Carolina State Planes- US Foot (EPSG #32019)
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)
ND83-NF	NAD83 North Dakota State Planes- Northern Zone- US Foot
ND83-N	NAD83 North Dakota State Planes- Northern Zone- Meter (EPSG #32120)
ND83-SF	NAD83 North Dakota State Planes- Southern Zone- US Foot
ND83-S	NAD83 North Dakota State Planes- Southern Zone- Meter (EPSG #32121)
NDHP-NF	HARN (HPGN) North Dakota State Planes- Northern Zone- US Foot
NDHP-N	HARN (HPGN) North Dakota State Planes- Northern Zone- Meter (EPSG #2832)
NDHP-SF	HARN (HPGN) North Dakota State Planes- Southern Zone- US Foot
NDHP-S	HARN (HPGN) North Dakota State Planes- Southern Zone- Meter (EPSG #2833)
NE-N	NAD27 Nebraska State Planes- Northern Zone- US Foot
NE-S	NAD27 Nebraska State Planes- Southern Zone- US Foot
NE83F	NAD83 Nebraska State Planes- US Foot
NE83	NAD83 Nebraska State Planes- Meter
NH83F	NAD83 New Hampshire State Planes- US Foot
NH83	NAD83 New Hampshire State Planes- Meter (EPSG #32110)
NHHPF	HPGN/HARN New Hampshire State Planes- US Foot

Value	Description
NHHP	HPGN/HARN New Hampshire State Planes- Meter (EPSG #2823)
NH	NAD27 New Hampshire State Planes- US Foot (EPSG #32010)
NJ83F	NAD83 New Jersey State Planes- US Foot
NJ83	NAD83 New Jersey State Planes- Meter (EPSG #32111)
NJHPF	HARN (HPGN) New Jersey State Planes- US Foot
NJHP	HARN (HPGN) New Jersey State Planes- Meter (EPSG #2824)
NJ	NAD27 New Jersey State Planes- US Foot (EPSG #32011)
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)
NM-W	NAD27 New Mexico State Planes- Western Zone- US Foot (EPSG #32014)
NM83-CF	NAD83 New Mexico State Planes- Central Zone- US Foot (EPSG #2258)
NM83-C	NAD83 New Mexico State Planes- Central Zone- Meter (EPSG #32113)
NM83-EF	NAD83 New Mexico State Planes- Eastern Zone- US Foot (EPSG #2257)
NM83-E	NAD83 New Mexico State Planes- Eastern Zone- Meter (EPSG #32112)
NM83-WF	NAD83 New Mexico State Planes- Western Zone- US Foot (EPSG #2259)
NM83-W	NAD83 New Mexico State Planes- Western Zone- Meter (EPSG #32114)
NMHP-CF	HPGN New Mexico State Planes- Central Zone- US Foot (EPSG #2903)
NMHP-C	HPGN New Mexico State Planes- Central Zone- Meter (EPSG #2826)
NMHP-EF	HPGN New Mexico State Planes- Eastern Zone- US Foot (EPSG #2902)
NMHP-E	HPGN New Mexico State Planes- Eastern Zone- Meter (EPSG #2825)
NMHP-WF	HPGN New Mexico State Planes- Western Zone- US Foot (EPSG #2904)
NMHP-W	HPGN New Mexico State Planes- Western Zone- Meter (EPSG #2827)
NV-C	NAD27 Nevada State Planes- Central Zone- US Foot (EPSG #32008)
NV-E	NAD27 Nevada State Planes- Eastern Zone- US Foot (EPSG #32007)
NV-W	NAD27 Nevada State Planes- Western Zone- US Foot (EPSG #32009)
NV83-CF	NAD83 Nevada State Planes- Central Zone- US Foot
NV83-C	NAD83 Nevada State Planes- Central Zone- Meter (EPSG #32108)
NV83-EF	NAD83 Nevada State Planes- Eastern Zone- US Foot
NV83-E	NAD83 Nevada State Planes- Eastern Zone- Meter (EPSG #32107)
NV83-WF	NAD83 Nevada State Planes- Western Zone- US Foot
NV83-W	NAD83 Nevada State Planes- Western Zone- Meter (EPSG #32109)
NVHP-CF	HARN (HPGN) Nevada State Planes- Central Zone- US Foot
NVHP-C	HARN (HPGN) Nevada State Planes- Central Zone- Meter (EPSG #2821)
NVHP-EF	HARN (HPGN) Nevada State Planes- Eastern Zone- US Foot
NVHP-E	HARN (HPGN) Nevada State Planes- Eastern Zone- Meter (EPSG #2820)
NVHP-WF	HARN (HPGN) Nevada State Planes- Western Zone- US Foot
NVHP-W	HARN (HPGN) Nevada State Planes- Western Zone- Meter (EPSG #2822)
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)
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)
NY83-CF	NAD83 New York State Planes- Central Zone- US Foot (EPSG #2261)
NY83-C	NAD83 New York State Planes- Central Zone- Meter (EPSG #32116)
NY83-EF	NAD83 New York State Planes- Eastern Zone- US Foot (EPSG #2260)
NY83-E	NAD83 New York State Planes- Eastern Zone- Meter (EPSG #32115)
NY83-LIF	NAD83 New York State Planes- Long Island- US Foot (EPSG #2263)
NY83-LI	NAD83 New York State Planes- Long Island- Meter (EPSG #32118)

Value	Description
NY83-WF	NAD83 New York State Planes- Western Zone- US Foot (EPSG #2262)
NY83-W	NAD83 New York State Planes- Western Zone- Meter (EPSG #32117)
NYHP-CF	HARN (HPGN) New York State Planes- Central Zone- US Foot (EPSG #2906)
NYHP-C	HARN (HPGN) New York State Planes- Central Zone- Meter (EPSG #2829)
NYHP-EF	HARN (HPGN) New York State Planes- Eastern Zone- US Foot (EPSG #2905)
NYHP-E	HARN (HPGN) New York State Planes- Eastern Zone- Meter (EPSG #2828)
NYHP-LIF	HARN (HPGN) New York State Planes- Long Island- US Foot (EPSG #2908)
NYHP-LI	HARN (HPGN) New York State Planes- Long Island- Meter (EPSG #2831)
NYHP-WF	HARN (HPGN) New York State Planes- Western Zone- US Foot (EPSG #2907)
NYHP-W	HARN (HPGN) New York State Planes- Western Zone- Meter (EPSG #2830)
OH-N	NAD27 Ohio State Planes- Northern Zone- US Foot (EPSG #32022)
OH-S	NAD27 Ohio State Planes- Southern Zone- US Foot (EPSG #32023)
OH83-NF	NAD83 Ohio State Planes- Northern Zone- US Foot
OH83-N	NAD83 Ohio State Planes- Northern Zone- Meter (EPSG #32122)
OH83-SF	NAD83 Ohio State Planes- Southern Zone- US Foot
OH83-S	NAD83 Ohio State Planes- Southern Zone- Meter (EPSG #32123)
OHHP-NF	HARN (HPGN) Ohio State Planes- Northern Zone- US Foot
OHHP-N	HARN (HPGN) Ohio State Planes- Northern Zone- Meter (EPSG #2834)
OHHP-SF	HARN (HPGN) Ohio State Planes- Southern Zone- US Foot
OHHP-S	HARN (HPGN) Ohio State Planes- Southern Zone- Meter (EPSG #2835)
OK-N	NAD27 Oklahoma State Planes- Northern Zone- US Foot (EPSG #32024)
OK-S	NAD27 Oklahoma State Planes- Southern Zone- US Foot (EPSG #32025)
OK83-NF	NAD83 Oklahoma State Planes- Northern Zone- US Foot (EPSG #2267)
OK83-N	NAD83 Oklahoma State Planes- Northern Zone- Meter (EPSG #32124)
OK83-SF	NAD83 Oklahoma State Planes- Southern Zone- US Foot (EPSG #2268)
OK83-S	NAD83 Oklahoma State Planes- Southern Zone- Meter (EPSG #32125)
OKHP-NF	HPGN Oklahoma State Planes- Northern Zone- US Foot (EPSG #2911)
OKHP-N	HPGN Oklahoma State Planes- Northern Zone- Meter (EPSG #2836)
OKHP-SF	HPGN Oklahoma State Planes- Southern Zone- US Foot (EPSG #2912)
OKHP-S	HPGN Oklahoma State Planes- Southern Zone- Meter (EPSG #2837)
OR-N	NAD27 Oregon State Planes- Northern Zone- US Foot (EPSG #32026)
OR-S	NAD27 Oregon State Planes- Southern Zone- US Foot (EPSG #32027)
OR83-NF	NAD83 Oregon State Planes- Northern Zone- US Foot
OR83-NIF	NAD83 Oregon State Planes- Northern Zone- Intnl Foot (EPSG #2269)
OR83-N	NAD83 Oregon State Planes- Northern Zone- Meter (EPSG #32126)
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)
OR83-S	NAD83 Oregon State Planes- Southern Zone- Meter (EPSG #32127)
ORHP-NF	HPGN Oregon State Planes- Northern Zone- US Foot
ORHP-NIF	HPGN Oregon State Planes- Northern Zone- Intnl Foot (EPSG #2913)
ORHP-N	HPGN Oregon State Planes- Northern Zone- Meter (EPSG #2838)
ORHP-SF	HPGN Oregon State Planes- Southern Zone- US Foot
ORHP-SIF	HPGN Oregon State Planes- Southern Zone- Intnl Foot (EPSG #2914)
ORHP-S	HPGN Oregon State Planes- Southern Zone- Meter (EPSG #2839)
PA-N	NAD27 Pennsylvania State Planes- Northern Zone- US Foot (EPSG #32028)

Value	Description
PA-S	NAD27 Pennsylvania State Planes- Southern Zone- US Foot (EPSG #32029)
PA83-NF	NAD83 Pennsylvania State Planes- Northern Zone- US Foot (EPSG #2271)
PA83-N	NAD83 Pennsylvania State Planes- Northern Zone- Meter (EPSG #32128)
PA83-SF	NAD83 Pennsylvania State Planes- Southern Zone- US Foot (EPSG #2272)
PA83-S	NAD83 Pennsylvania State Planes- Southern Zone- Meter (EPSG #32129)
PAHP-NF	HARN (HPGN) Pennsylvania State Planes- Northern Zone- US Foot
PAHP-N	HARN (HPGN) Pennsylvania State Planes- Northern Zone- Meter
PAHP-SF	HARN (HPGN) Pennsylvania State Planes- Southern Zone- US Foot
PAHP-S	HARN (HPGN) Pennsylvania State Planes- Southern Zone- Meter
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
PR83F	NAD83 Puerto Rico and Virgin Islands- US Foot
PR83	NAD83 Puerto Rico and Virgin Islands- Meter (EPSG #32161)
PRHPF	HPGN Puerto Rico and Virgin Islands- US Foot
PRHP	HPGN Puerto Rico and Virgin Islands- Meter (EPSG #2866)
RI83F	NAD83 Rhode Island State Planes- US Foot
RI83	NAD83 Rhode Island State Planes- Meter (EPSG #32130)
RIHPF	HPGN/HARN Rhode Island State Planes- US Foot
RIHP	HPGN/HARN Rhode Island State Planes- Meter (EPSG #2840)
RI	NAD27 Rhode Island State Planes- US Foot (EPSG #32030)
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)
SC83F	NAD83 South Carolina State Planes- US Foot
SC83IF	NAD83 South Carolina State Planes- Intnl Foot (EPSG #2273)
SC83	NAD83 South Carolina State Planes- Meter (EPSG #32133)
SCHPF	HARN (HPGN) South Carolina State Planes- US Foot
SCHPIF	HARN (HPGN) South Carolina State Planes- Intnl Foot
SCHP	HARN (HPGN) South Carolina State Planes- Meter
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)
SD83-NF	NAD83 South Dakota State Planes- Northern Zone- US Foot
SD83-N	NAD83 South Dakota State Planes- Northern Zone- Meter (EPSG #32134)
SD83-SF	NAD83 South Dakota State Planes- Southern Zone- US Foot
SD83-S	NAD83 South Dakota State Planes- Southern Zone- Meter (EPSG #32135)
SDHP-NF	HARN (HPGN) South Dakota State Planes- Northern Zone- US Foot
SDHP-N	HARN (HPGN) South Dakota State Planes- Northern Zone- Meter (EPSG #2841)
SDHP-SF	HARN (HPGN) South Dakota State Planes- Southern Zone- US Foot
SDHP-S	HARN (HPGN) South Dakota State Planes- Southern Zone- Meter (EPSG #2842)
TN83F	NAD83 Tennessee State Plane Zone- US Foot (EPSG #2274)
TN83	NAD83 Tennessee State Plane Zone- Meter (EPSG #32136)
TNHPF	HPGN Tennessee State Plane Zone- US Foot (EPSG #2915)
TNHP	HPGN Tennessee State Plane Zone- Meter (EPSG #2843)
TN	NAD27 Tennessee State Plane Zone- US Foot (EPSG #2204)
TX-C	NAD27 Texas State Planes- Central Zone- US Foot (EPSG #32039)
TX-NC	NAD27 Texas State Planes- North Central Zone- US Foot (EPSG #32038)

Value	Description
TX-N	NAD27 Texas State Planes- Northern Zone- US Foot (EPSG #32037)
TX-SC	NAD27 Texas State Planes- South Central Zone- US Foot (EPSG #32040)
TX-S	NAD27 Texas State Planes- Southern Zone- US Foot (EPSG #32041)
TX83-CF	NAD83 Texas State Planes- Central Zone- US Foot (EPSG #2277)
TX83-C	NAD83 Texas State Planes- Central Zone- Meter (EPSG #32139)
TX83-NCF	NAD83 Texas State Planes- North Central Zone- US Foot (EPSG #2276)
TX83-NC	NAD83 Texas State Planes- North Central Zone- Meter (EPSG #32138)
TX83-NF	NAD83 Texas State Planes- Northern Zone- US Foot (EPSG #2275)
TX83-N	NAD83 Texas State Planes- Northern Zone- Meter (EPSG #32137)
TX83-SCF	NAD83 Texas State Planes- South Central Zone- US Foot (EPSG #2278)
TX83-SC	NAD83 Texas State Planes- South Central Zone- Meter (EPSG #32140)
TX83-SF	NAD83 Texas State Planes- Southern Zone- US Foot (EPSG #2279)
TX83-S	NAD83 Texas State Planes- Southern Zone- Meter (EPSG #32141)
TXHP-CF	HPGN/HARN Texas State Planes- Central Zone- US Foot (EPSG #2918)
TXHP-C	HPGN/HARN Texas State Planes- Central Zone- Meter (EPSG #2846)
TXHP-NCF	HPGN/HARN Texas State Planes- North Central Zone- US Foot (EPSG #2917)
TXHP-NC	HPGN/HARN Texas State Planes- North Central Zone- Meter (EPSG #2845)
TXHP-NF	HPGN/HARN Texas State Planes- Northern Zone- US Foot (EPSG #2916)
TXHP-N	HPGN/HARN Texas State Planes- Northern Zone- Meter (EPSG #2844)
TXHP-SCF	HPGN/HARN Texas State Planes- South Central Zone- US Foot (EPSG #2919)
TXHP-SC	HPGN/HARN Texas State Planes- South Central Zone- Meter (EPSG #2847)
TXHP-SF	HPGN/HARN Texas State Planes- Southern Zone- US Foot (EPSG #2920)
TXHP-S	HPGN/HARN Texas State Planes- Southern Zone- Meter (EPSG #2848)
UT-C	NAD27 Utah State Planes- Central Zone- US Foot (EPSG #32043)
UT-N	NAD27 Utah State Planes- Northern Zone- US Foot (EPSG #32042)
UT-S	NAD27 Utah State Planes- Southern Zone- US Foot (EPSG #32044)
UT83-CF	NAD83 Utah State Planes- Central Zone- US Foot
UT83-CIF	NAD83 Utah State Planes- Central Zone- Intnl Foot (EPSG #2281)
UT83-C	NAD83 Utah State Planes- Central Zone- Meter (EPSG #32143)
UT83-NF	NAD83 Utah State Planes- Northern Zone- US Foot
UT83-NIF	NAD83 Utah State Planes- Northern Zone- Intnl Foot (EPSG #2280)
UT83-N	NAD83 Utah State Planes- Northern Zone- Meter (EPSG #32142)
UT83-SF	NAD83 Utah State Planes- Southern Zone- US Foot
UT83-SIF	NAD83 Utah State Planes- Southern Zone- Intnl Foot (EPSG #2282)
UT83-S	NAD83 Utah State Planes- Southern Zone- Meter (EPSG #32144)
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-C	HARN (HPGN) Utah State Planes- Central Zone- Meter (EPSG #2850)
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-N	HARN (HPGN) Utah State Planes- Northern Zone- Meter (EPSG #2849)
UTHP-SF	HARN (HPGN) Utah State Planes- Southern Zone- US Foot
UTHP-SIF	HARN (HPGN) Utah State Planes- Southern Zone- Intnl Foot (EPSG #2923)
UTHP-S	HARN (HPGN) Utah State Planes- Southern Zone- Meter (EPSG #2851)
UTM27-10F	NAD27 UTM- Zone 10 North- US Foot
UTM27-10IF	NAD27 UTM- Zone 10 North- Intnl Foot
UTM27-10	NAD27 UTM- Zone 10 North- Meter (EPSG #26710)

Value	Description
UTM27-11F	NAD27 UTM- Zone 11 North- US Foot
UTM27-11IF	NAD27 UTM- Zone 11 North- Intnl Foot
UTM27-11	NAD27 UTM- Zone 11 North- Meter (EPSG #26711)
UTM27-12F	NAD27 UTM- Zone 12 North- US Foot
UTM27-12IF	NAD27 UTM- Zone 12 North- Intnl Foot
UTM27-12	NAD27 UTM- Zone 12 North- Meter (EPSG #26712)
UTM27-13F	NAD27 UTM- Zone 13 North- US Foot
UTM27-13IF	NAD27 UTM- Zone 13 North- Intnl Foot
UTM27-13	NAD27 UTM- Zone 13 North- Meter (EPSG #26713)
UTM27-14F	NAD27 UTM- Zone 14 North- US Foot
UTM27-14IF	NAD27 UTM- Zone 14 North- Intnl Foot
UTM27-14	NAD27 UTM- Zone 14 North- Meter (EPSG #26714)
UTM27-15F	NAD27 UTM- Zone 15 North- US Foot
UTM27-15IF	NAD27 UTM- Zone 15 North- Intnl Foot
UTM27-15	NAD27 UTM- Zone 15 North- Meter (EPSG #26715)
UTM27-16F	NAD27 UTM- Zone 16 North- US Foot
UTM27-16IF	NAD27 UTM- Zone 16 North- Intnl Foot
UTM27-16	NAD27 UTM- Zone 16 North- Meter (EPSG #26716)
UTM27-17F	NAD27 UTM- Zone 17 North- US Foot
UTM27-17IF	NAD27 UTM- Zone 17 North- Intnl Foot
UTM27-17	NAD27 UTM- Zone 17 North- Meter (EPSG #26717)
UTM27-18F	NAD27 UTM- Zone 18 North- US Foot
UTM27-18IF	NAD27 UTM- Zone 18 North- Intnl Foot
UTM27-18	NAD27 UTM- Zone 18 North- Meter (EPSG #26718)
UTM27-19F	NAD27 UTM- Zone 19 North- US Foot
UTM27-19IF	NAD27 UTM- Zone 19 North- Intnl Foot
UTM27-19	NAD27 UTM- Zone 19 North- Meter (EPSG #26719)
UTM27-1N	NAD27 / UTM zone 1N (EPSG #26701)
UTM27-1	NAD27 UTM- Zone 1 North- Meter
UTM27-20F	NAD27 UTM- Zone 20 North- US Foot
UTM27-20IF	NAD27 UTM- Zone 20 North- Intnl Foot
UTM27-20	NAD27 UTM- Zone 20 North- Meter (EPSG #26720)
UTM27-21F	NAD27 UTM- Zone 21 North- US Foot
UTM27-21IF	NAD27 UTM- Zone 21 North- Intnl Foot
UTM27-21	NAD27 UTM- Zone 21 North- Meter (EPSG #26721)
UTM27-22F	NAD27 UTM- Zone 22 North- US Foot
UTM27-22IF	NAD27 UTM- Zone 22 North- Intnl Foot
UTM27-22	NAD27 UTM- Zone 22 North- Meter (EPSG #26722)
UTM27-23F	NAD27 UTM- Zone 23 North- US Foot
UTM27-23IF	NAD27 UTM- Zone 23 North- Intnl Foot
UTM27-23	NAD27 UTM- Zone 23 North- Meter
UTM27-2N	NAD27 / UTM zone 2N (EPSG #26702)
UTM27-2	NAD27 UTM- Zone 2 North- Meter
UTM27-3F	NAD27 UTM- Zone 3 North- US Survey Foot
UTM27-3IF	NAD27 UTM- Zone 3 North- Intnl Foot
UTM27-3	NAD27 UTM- Zone 3 North- Meter (EPSG #26703)
UTM27-4F	NAD27 UTM- Zone 4 North- US Survey Foot

Value	Description
UTM27-4IF	NAD27 UTM- Zone 4 North- Intnl Foot
UTM27-4	NAD27 UTM- Zone 4 North- Meter (EPSG #26704)
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
UTM27-5	NAD27 UTM- Zone 5 North- Meter (EPSG #26705)
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
UTM27-6	NAD27 UTM- Zone 6 North- Meter (EPSG #26706)
UTM27-7F	NAD27 UTM- Zone 7 North- US Foot
UTM27-7IF	NAD27 UTM- Zone 7 North- Intnl Foot
UTM27-7	NAD27 UTM- Zone 7 North- Meter (EPSG #26707)
UTM27-8F	NAD27 UTM- Zone 8 North- US Foot
UTM27-8IF	NAD27 UTM- Zone 8 North- Intnl Foot
UTM27-8	NAD27 UTM- Zone 8 North- Meter (EPSG #26708)
UTM27-9F	NAD27 UTM- Zone 9 North- US Foot
UTM27-9IF	NAD27 UTM- Zone 9 North- Intnl Foot
UTM27-9	NAD27 UTM- Zone 9 North- Meter (EPSG #26709)
UTM83-10F	NAD83 UTM- Zone 10 North- US Foot
UTM83-10IF	NAD83 UTM- Zone 10 North- Intnl Foot
UTM83-10	NAD83 UTM- Zone 10 North- Meter (EPSG #26910)
UTM83-11F	NAD83 UTM- Zone 11 North- US Foot
UTM83-11IF	NAD83 UTM- Zone 11 North- Intnl Foot
UTM83-11	NAD83 UTM- Zone 11 North- Meter (EPSG #26911)
UTM83-12F	NAD83 UTM- Zone 12 North- US Foot
UTM83-12IF	NAD83 UTM- Zone 12 North- Intnl Foot
UTM83-12	NAD83 UTM- Zone 12 North- Meter (EPSG #26912)
UTM83-13F	NAD83 UTM- Zone 13 North- US Foot
UTM83-13IF	NAD83 UTM- Zone 13 North- Intnl Foot
UTM83-13	NAD83 UTM- Zone 13 North- Meter (EPSG #26913)
UTM83-14F	NAD83 UTM- Zone 14 North- US Foot
UTM83-14IF	NAD83 UTM- Zone 14 North- Intnl Foot
UTM83-14	NAD83 UTM- Zone 14 North- Meter (EPSG #26914)
UTM83-15F	NAD83 UTM- Zone 15 North- US Foot
UTM83-15IF	NAD83 UTM- Zone 15 North- Intnl Foot
UTM83-15	NAD83 UTM- Zone 15 North- Meter (EPSG #26915)
UTM83-16F	NAD83 UTM- Zone 16 North- US Foot
UTM83-16IF	NAD83 UTM- Zone 16 North- Intnl Foot
UTM83-16	NAD83 UTM- Zone 16 North- Meter (EPSG #26916)
UTM83-17F	NAD83 UTM- Zone 17 North- US Foot
UTM83-17IF	NAD83 UTM- Zone 17 North- Intnl Foot
UTM83-17	NAD83 UTM- Zone 17 North- Meter (EPSG #26917)
UTM83-18F	NAD83 UTM- Zone 18 North- US Foot
UTM83-18IF	NAD83 UTM- Zone 18 North- Intnl Foot
UTM83-18	NAD83 UTM- Zone 18 North- Meter (EPSG #26918)

Value	Description
UTM83-19F	NAD83 UTM- Zone 19 North- US Foot
UTM83-19IF	NAD83 UTM- Zone 19 North- Intnl Foot
UTM83-19	NAD83 UTM- Zone 19 North- Meter (EPSG #26919)
UTM83-1	NAD83 UTM- Zone 1 North- Meter (EPSG #26901)
UTM83-20F	NAD83 UTM- Zone 20 North- US Foot
UTM83-20IF	NAD83 UTM- Zone 20 North- Intnl Foot
UTM83-20	NAD83 UTM- Zone 20 North- Meter (EPSG #26920)
UTM83-21F	NAD83 UTM- Zone 21 North- US Foot
UTM83-21IF	NAD83 UTM- Zone 21 North- Intnl Foot
UTM83-21	NAD83 UTM- Zone 21 North- Meter (EPSG #26921)
UTM83-22F	NAD83 UTM- Zone 22 North- US Foot
UTM83-22IF	NAD83 UTM- Zone 22 North- Intnl Foot
UTM83-22	NAD83 UTM- Zone 22 North- Meter (EPSG #26922)
UTM83-23	NAD83 Universal Transverse Mercator- Zone 23 North- Meter
UTM83-2	NAD83 UTM- Zone 2 North- Meter (EPSG #26902)
UTM83-3F	NAD83 UTM- Zone 3 North- US Survey Foot
UTM83-3	NAD83 UTM- Zone 3 North- Meter (EPSG #26903)
UTM83-4F	NAD83 UTM- Zone 4 North- US Survey Foot
UTM83-4	NAD83 UTM- Zone 4 North- Meter (EPSG #26904)
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
UTM83-5IF	NAD83 UTM- Zone 5 North- Intnl Foot
UTM83-5	NAD83 UTM- Zone 5 North- Meter (EPSG #26905)
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
UTM83-6	NAD83 UTM- Zone 6 North- Meter (EPSG #26906)
UTM83-7F	NAD83 UTM- Zone 7 North- US Foot
UTM83-7IF	NAD83 UTM- Zone 7 North- Intnl Foot
UTM83-7	NAD83 UTM- Zone 7 North- Meter (EPSG #26907)
UTM83-8F	NAD83 UTM- Zone 8 North- US Foot
UTM83-8IF	NAD83 UTM- Zone 8 North- Intnl Foot
UTM83-8	NAD83 UTM- Zone 8 North- Meter (EPSG #26908)
UTM83-9F	NAD83 UTM- Zone 9 North- US Foot
UTM83-9IF	NAD83 UTM- Zone 9 North- Intnl Foot
UTM83-9	NAD83 UTM- Zone 9 North- Meter (EPSG #26909)
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)

Value	Description
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)
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)

Value	Description
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)
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)

Value	Description
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-10F	HPGN UTM- Zone 10 North- US Foot
UTMHP-10IF	HPGN UTM- Zone 10 North- Intnl Foot
UTMHP-10	HPGN UTM- Zone 10 North- Meter
UTMHP-11F	HPGN UTM- Zone 11 North- US Foot
UTMHP-11IF	HPGN UTM- Zone 11 North- Intnl Foot
UTMHP-11	HPGN UTM- Zone 11 North- Meter
UTMHP-12F	HPGN UTM- Zone 12 North- US Foot
UTMHP-12IF	HPGN UTM- Zone 12 North- Intnl Foot
UTMHP-12	HPGN UTM- Zone 12 North- Meter
UTMHP-13F	HPGN UTM- Zone 13 North- US Foot
UTMHP-13IF	HPGN UTM- Zone 13 North- Intnl Foot
UTMHP-13	HPGN UTM- Zone 13 North- Meter
UTMHP-14F	HPGN UTM- Zone 14 North- US Foot
UTMHP-14IF	HPGN UTM- Zone 14 North- Intnl Foot
UTMHP-14	HPGN UTM- Zone 14 North- Meter
UTMHP-15F	HPGN UTM- Zone 15 North- US Foot
UTMHP-15IF	HPGN UTM- Zone 15 North- Intnl Foot
UTMHP-15	HPGN UTM- Zone 15 North- Meter
UTMHP-16F	HPGN UTM- Zone 16 North- US Foot
UTMHP-16IF	HPGN UTM- Zone 16 North- Intnl Foot
UTMHP-16	HPGN UTM- Zone 16 North- Meter
UTMHP-17F	HPGN UTM- Zone 17 North- US Foot
UTMHP-17IF	HPGN UTM- Zone 17 North- Intnl Foot
UTMHP-17	HPGN UTM- Zone 17 North- Meter
UTMHP-18F	HPGN UTM- Zone 18 North- US Foot
UTMHP-18IF	HPGN UTM- Zone 18 North- Intnl Foot
UTMHP-18	HPGN UTM- Zone 18 North- Meter
VA-N	NAD27 Virginia State Planes- Northern Zone- US Foot (EPSG #32046)
VA-S	NAD27 Virginia State Planes- Southern Zone- US Foot (EPSG #32047)
VA83-NF	NAD83 Virginia State Planes- Northern Zone- US Foot (EPSG #2283)

Value	Description
VA83-N	NAD83 Virginia State Planes- Northern Zone- Meter (EPSG #32146)
VA83-SF	NAD83 Virginia State Planes- Southern Zone- US Foot (EPSG #2284)
VA83-S	NAD83 Virginia State Planes- Southern Zone- Meter (EPSG #32147)
VAHP-NF	HPGN/HARN Virginia State Planes- Northern Zone- US Foot (EPSG #2924)
VAHP-N	HPGN/HARN Virginia State Planes- Northern Zone- Meter (EPSG #2853)
VAHP-SF	HPGN/HARN Virginia State Planes- Southern Zone- US Foot (EPSG #2925)
VAHP-S	HPGN/HARN Virginia State Planes- Southern Zone- Meter (EPSG #2854)
VT83F	NAD83 Vermont State Planes- US Foot
VT83	NAD83 Vermont State Planes- Meter (EPSG #32145)
VTHPF	HPGN/HARN Vermont State Planes- US Foot
VTHP	HPGN/HARN Vermont State Planes- Meter (EPSG #2852)
VT	NAD27 Vermont State Planes- US Foot (EPSG #32045)
WA-N	NAD27 Washington State Planes- Northern Zone- US Foot (EPSG #32048)
WA-S	NAD27 Washington State Planes- Southern Zone- US Foot (EPSG #32049)
WA83-NF	NAD83 Washington State Planes- Northern Zone- US Foot (EPSG #2285)
WA83-N	NAD83 Washington State Planes- Northern Zone- Meter (EPSG #32148)
WA83-SF	NAD83 Washington State Planes- Southern Zone- US Foot (EPSG #2286)
WA83-S	NAD83 Washington State Planes- Southern Zone- Meter (EPSG #32149)
WAHP-NF	HPGN Washington State Planes- Northern Zone- US Foot (EPSG #2926)
WAHP-N	HPGN Washington State Planes- Northern Zone- Meter (EPSG #2855)
WAHP-SF	HPGN Washington State Planes- Southern Zone- US Foot (EPSG #2927)
WAHP-S	HPGN Washington State Planes- Southern Zone- Meter (EPSG #2856)
WI-C	NAD27 Wisconsin State Planes- Central Zone- US Foot (EPSG #32053)
WI-N	NAD27 Wisconsin State Planes- Northern Zone- US Foot (EPSG #32052)
WI-S	NAD27 Wisconsin State Planes- Southern Zone- US Foot (EPSG #32054)
WI83-CF	NAD83 Wisconsin State Planes- Central Zone- US Foot (EPSG #2288)
WI83-C	NAD83 Wisconsin State Planes- Central Zone- Meter (EPSG #32153)
WI83-NF	NAD83 Wisconsin State Planes- Northern Zone- US Foot (EPSG #2287)
WI83-N	NAD83 Wisconsin State Planes- Northern Zone- Meter (EPSG #32152)
WI83-SF	NAD83 Wisconsin State Planes- Southern Zone- US Foot (EPSG #2289)
WI83-S	NAD83 Wisconsin State Planes- Southern Zone- Meter (EPSG #32154)
WIHP-CF	HPGN Wisconsin State Planes- Central Zone- US Foot (EPSG #2929)
WIHP-C	HPGN Wisconsin State Planes- Central Zone- Meter (EPSG #2860)
WIHP-NF	HPGN Wisconsin State Planes- Northern Zone- US Foot (EPSG #2928)
WIHP-N	HPGN Wisconsin State Planes- Northern Zone- Meter (EPSG #2859)
WIHP-SF	HPGN Wisconsin State Planes- Southern Zone- US Foot (EPSG #2930)
WIHP-S	HPGN Wisconsin State Planes- Southern Zone- Meter (EPSG #2861)
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)
WV83-NF	NAD83 West Virginia State Planes- Northern Zone- US Foot
WV83-N	NAD83 West Virginia State Planes- Northern Zone- Meter (EPSG #32150)
WV83-SF	NAD83 West Virginia State Planes- Southern Zone- US Foot
WV83-S	NAD83 West Virginia State Planes- Southern Zone- Meter (EPSG #32151)
WVHP-NF	HARN (HPGN) West Virginia State Planes- Northern Zone- US Foot
WVHP-N	HARN (HPGN) West Virginia State Planes- Northern Zone- Meter (EPSG #2857)
WVHP-SF	HARN (HPGN) West Virginia State Planes- Southern Zone- US Foot

Value	Description
WVHP-S	HARN (HPGN) West Virginia State Planes- Southern Zone- Meter (EPSG #2858)
WY-EC	NAD27 Wyoming State Planes- East Central Zone- US Foot (EPSG #32056)
WY-E	NAD27 Wyoming State Planes- Eastern Zone- US Foot (EPSG #32055)
WY-WC	NAD27 Wyoming State Planes- West Central Zone- US Foot (EPSG #32057)
WY-W	NAD27 Wyoming State Planes- Western Zone- US Foot (EPSG #32058)
WY83-ECF	NAD83 Wyoming State Planes- East Central Zone- US Foot
WY83-EC	NAD83 Wyoming State Planes- East Central Zone- Meter (EPSG #32156)
WY83-EF	NAD83 Wyoming State Planes- Eastern- US Foot
WY83-E	NAD83 Wyoming State Planes- Eastern- Meter (EPSG #32155)
WY83-WCF	NAD83 Wyoming State Planes- West Central Zone- US Foot
WY83-WC	NAD83 Wyoming State Planes- West Central Zone- Meter (EPSG #32157)
WY83-WF	NAD83 Wyoming State Planes- Western- US Foot
WY83-W	NAD83 Wyoming State Planes- Western- Meter (EPSG #32158)
WYHP-ECF	HPGN/HARN Wyoming State Planes- East Central Zone- US Foot
WYHP-EC	HPGN/HARN Wyoming State Planes- East Central Zone- Meter (EPSG #2863)
WYHP-EF	HPGN/HARN Wyoming State Planes- Eastern- US Foot
WYHP-E	HPGN/HARN Wyoming State Planes- Eastern- Meter (EPSG #2862)
WYHP-WCF	HPGN/HARN Wyoming State Planes- West Central Zone- US Foot
WYHP-WC	HPGN/HARN Wyoming State Planes- West Central Zone- Meter (EPSG #2864)
WYHP-WF	HPGN/HARN Wyoming State Planes- Western- US Foot
WYHP-W	HPGN/HARN Wyoming State Planes- Western- Meter (EPSG #2865)

5.15.12.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

5.15.13.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
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
ROFZ	Runway Object Free Zone
RPZ	Runway protection zone (See AC 150/5300-13)
277BRSA	Runway safety area
RSZ	Runway safety zone
RWYPTX	Runway to Parallel Taxiway and Taxiline Separation

Value	Description
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)

5.15.14.CodeDirectionality

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

5.15.15.CodeFaaRegion

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

5.15.16.CodeFuel

Value	Description
115	115/145 octane gasoline, leaded, MIL-L-5572F (PURPLE)
100	100/130 octane gasoline, leaded, MIL-L-5572F (GREEN)
100LL	100/130 MIL Spec, low lead, aviation gasoline (BLUE)
7	JP-7, Jet Propellant type 7 (Glass Tank Fuel)
80	80/87 octane gasoline, leaded, MIL-L-5572F (RED)
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

5.15.17.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

5.15.18.CodeGridType

Name	Definition
ed50	European Datum 1950
gaussKruger	Gauss Kruger
GEOREF	World Geographic Reference System
ING	Irish National Grid Reference Survey
LCC	Lambert Conformal Conic
LL	Latitude, longitude
MIL	Military
OTHER	Other
RT90	Swedish Coordinate System
SPCS	State Plane Coordinate System
UPS	Universal Polar Stereographic
USNG	United States National Grid for Spatial Addressing
UTM	Universal Transverse Mercator

5.15.19.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.

Class	Division	Description
	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- 1. Is ignitable at 101.3 kPa (14.7 psi) when in a mixture of 13 percent or less by volume with air; or 2. Has a flammable range at 101.3 kPa (14.7 psi) with air of at least 12 percent regardless of the lower limit.
	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: 1. Exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F), and 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: 1. Is known to be so toxic to humans as to pose a hazard to health during transportation, or 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: Artificially changing variables such as pressure or density; or Adding accelerants.
	4.1	Flammable Solid
	4.2	Spontaneously Combustible

Class	Division	Description
	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)
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.

5.15.20.CodeHazardType

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

5.15.21.CodeLandmarkType

Value	Description
AERIAL CABLEWAY	
AGRICULTURE AREA	
AIRPORT	
ATHLETIC FIELD	
BOAT RAMP	
BREAKWATER	

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

5.15.22.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)

Value	Description
3230	Waste processing or recycling (Source: APA LBCS)
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)
5700	Spacecraft launching and related activities (Source: APA LBCS)

Value	Description
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)

5.15.23. CodeLightingType

Value	Description
ALSF-1	High Intensity Approach Lighting System - Configuration 1
ALSF-2	High Intensity Approach Lighting System - Configuration 2
APTBCN	Airport Beacon
CLRBAR	Taxiway Clearance Bar Lights

Value	Description
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)
HIRL	High Intensity Runway Edge Lights
ISO	Isophase (Sea Plane Navigation Buoy use only)
L-850C	Style 3 Flush in-pavement fixture
L-852D	Taxiway centerline for Cat III
L-852E/F	Runway Guard Light in-pavement
L-852G	Combination Runway Guard
L-852G/S	Combination Runway Guard/Stop bar light in-pavement
L-852S	Stop Bar Light In-pavement
L-853	Reflective Marker
L-854	Radio Controller (Pilot Controlled Lights)
L-860	Low-Intensity Elevated Light
L-861	Medium-Intensity Elevated Runway Edge Light
L-862	High-Intensity Elevated Runway Edge Light
L-880/L881	Precision Approach Path Indicator
LAHSO	Land and Hold Short Operations
LDIN	Lead In Lighting System
LIRL	Low Intensity Runway Edge Lights
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)
MIRL	Medium Intensity Runway Edge Lights
MITL	Medium Intensity Taxiway Lights
MO (A)	Morse Code (Sea Plane Navigation Buoy use only)
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
PAPI2	Precision Approach Path Indicator with 2 lights
PAPI4	Precision Approach Path Indicator with 4 lights
PORTABLE	Portable Lights
PVASI	Pulsating visual Approach Slope Indicator
Q	Quick (Flashing) (Sea Plane Navigation Buoy use only)
RCL	Runway Centerline Lighting
REIL	Runway End Identifier Lights
RGL	Runway Guard Lights
RWSL	Runway Status Lights
SMGCS	Surface Movement Guidance Control System

Value	Description
SSALR	Simplified Short Approach Lighting System with Runway Alignment Indicator
TCL	Taxiway Centerline Lights
TDZ	Touchdown Zone Lighting
TRCV	TriColor VASI
TWYON_OFFLGT	Taxiway Lead on/off lights
VASI -2-2	Visual Approach Slope Indicator with 2 bars and 2 boxes
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-3	Visual Approach Slope Indicator with 3 bars

5.15.24.CodeLoadingBridgeType

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

5.15.25.CodeLowVisibilityCategory

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

5.15.26.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]
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]

Value	Description
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]
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]
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]

Value	Description
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]

5.15.27.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
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]

Value	Description
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]

5.15.28.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	Glideslope
LOC	Localizer
MLSAZ	Microwave Landing System Azimuth Antenna
MLSDME	Microwave Landing System DME
MLSEL	Microwave Landing System Elevation Antenna
MSBLS-DME	Microwave Scan Beam Landing System Distance Measuring Equipment
MSBLS-AZ	Microwave Scan Beam Landing System Azimuth
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
NDB/U	Nondirectional Radio Beacons/Ultra HF
PAR	Precision Approach Radar
SECRA	Secondary Radar Antenna
SDF	Simplified Direction Finding Equipment
TACAN	Tactical Air Navigation
TDR	Touchdown Reflector
TLS-LOC	Transponder Landing System – Localizer
TLS-APGS	Transponder Landing System Approach Glideslope
VOR	VHF Omnidirectional Range
VORTAC	VOR and collocated TACAN
VOT	VOR Test Facility

5.15.29.CodeNavaidSystemType

Value	Description
DF	Direction Finder

Value	Description
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

5.15.30.CodeObstacleSource

Value	Description
AD	Airport Design and Planning
AF	FAA Tech Ops Field Survey
AO	Airports Field Office
EO	Estimated by Airport Owner
DD	Digital Terrain Elevation Data
DI	U.S. Department of Interior Maps
DM	USGS Digital Elevation Model
F77	Part 77 Analysis
FI	Flight Inspection
OF	Digital Obstacle File (FAA)
OR	Other Source not named
NV	Non-Vertically Guided Airport Airspace Analysis
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

5.15.31.CodeObstacleType

Value	Description
AGRICULTURE EQUIPMENT	Generic for any agricultural equipment
AERIAL CABLEWAY	
AERIAL CABLEWAY PYLON	
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/OVERPASS/VIADUCT	Generic for any type of bridge

Value	Description
BRIDGE SUPERSTRUCTURE	Generic for larger bridges such as cable stayed bridges etc.
BRIDGE TOWER	
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
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
COMMUNICATION BUILDING	
COMMUNICATION TOWER	
CONTROL TOWER	
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
INTERSTATE	Interstate highways with 17 foot vehicle allowance added to the features elevation
LANUCHPAD	
LIGHTHOUSE	
LIGHT RAILWAY	Generic for people mover systems serving airports
LIGHT SUPPORT STRUCTURE	
LIGHT VESSEL/LIGHTSHIP	
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

Value	Description
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	
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	

Value	Description
WATER TOWER	Generic for water towers
WINDMILL	Single windmill
WINDMILL FARMS	Multiple Windmills located close together
WIND MOTOR	

5.15.32.CodeObstructionAreaType

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

5.15.33.CodeOffsetDirection

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

5.15.34.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.

5.15.35.CodeOisSurfaceType

Value	Description
AAAA - Airport Airspace Analysis Survey	Approach Surfaces
AAAC Airport Airspace Analysis Survey	Conical Surface
AAAH Airport Airspace Analysis Survey	Horizontal Surface
AAAP Airport Airspace Analysis Survey	Primary Surfaces
AAAT - Airport Airspace Analysis Survey	Transitional Surfaces
AAAV - Airport Airspace Analysis Survey	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

5.15.36.CodeOisZoneType

Value	Description
APPROACH	
CONICAL	

Value	Description
HORIZONTAL	
PRIMARY	
TRANSITION	

5.15.37. CodeOperationsType

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

5.15.38. 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

5.15.39. 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
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
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.

Value	Description
SACS	Point referenced is the airport's Secondary Airport Control Station
SPOT_ELEVATION	Spot Elevation Point
STOPWAY_END	Point provides the end point for the stopway
TEMPORARY_SURVEY_MARK	Temporary Survey Mark
VERTICAL_OBJECT	Point reference is a VerticalPointObject not classified by another feature but of possible significance

5.15.40. CodeProjectStatus

Value	Description
IN_PROGRESS	In progress
PLANNED	Approved and planned
PROPOSED	Not yet approved

5.15.41. CodeRecoveredCondition

Value	Description
Good	Mark recovered in good condition
Poor	Mark recovered in poor condition and should be considered for replacement
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).
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
Set now (for a first time description)	To identify a condition not available in the list.
Other	

5.15.42. CodeRouteType

Value	Description
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]
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
STATE	Hard-surface State routes under the control and jurisdiction of State authorities
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
LOCAL	Local jurisdiction roads
CITY	City or subdivision streets
FIFTHCLASS	Fifth Class Unimproved roads passable only with 4-wheel-drive vehicles [USGS, 2001, Part 3: Transportation]
ALLEY	Hard-surface or loose-surface narrow street or passageway primarily

Value	Description
	found between or behind buildings
FIRSTCLASS	
JEEPTRAIL	Unimproved roads passable only with 4-wheel-drive vehicles
OTHER	Other class of road
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]
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]
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

5.15.43.CodeRunwayProtectionAreaType

Value	Description
CWY	Clearway
IAOFZ	Inner Approach Obstacle Free Zone
ILS	ILS protection area. Protects ILS signal distortion by forbidding large objects in the area.
ITOFZ	Inner Transitional Obstacle Free Zone
LIGHT	Light Plane Surface
OTHER	Other
ROFA	Runway Object Free Area
ROFZ	Runway Obstacle Free Zone
RPZ	Runway Protection Zone
RSA	Runway safety area
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.
TOFA	Taxiway Object Free Area
VGSI	Visual Glide Slope Indicator (VGSI) protection area. Protects VGSI signal coverage by forbidding objects in the area.

5.15.44.CodeSamplePointLocation

Value	Description
AS	Air sample
BH	Borehole
BIO	Biological sample
GWS	Ground water sample
OTHER	Other

Value	Description
SEDS	Sediment sample
SOIL	Soil sample
SOLM	Solid material sample
SURF	Surface water sample
WAS	Waste water sample
WL	Well

5.15.45.CodeSegmentType

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

5.15.46.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
MEAN_SEA_LEVEL	The arithmetic mean of hourly heights observed over some specified time

5.15.47.CodeShoulderType

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

5.15.48.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

Value	Description
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
TERMINAL	Inbound Destination Sign - gate positions at which aircraft are loaded and unloaded
TAXIWAY_DIRECTION	Taxiway Direction Sign
TAXIWAY_END	Taxiway Ending Marker
TAXIWAY_LOCATION	Taxiway Location Sign

5.15.49.CodeStatus

Value	Description
ABANDONED	Abandoned
ACTIVE	Active surface
AS_BUILT	
BROKEN	Broken or rough surface
CLOSED	Closed surface
CONDEMNED	
DEMOLISHED	
FAILED_AID	Failure or irregular operation of visual aides
INACTIVE	
LIMITED	Limited operations]
NON_OPERATIONAL	Non-operational
OCCUPIED	
OPERATIONAL	Operational (fully)
OTHER	
PARKED	Parked or disabled aircraft
PERMANENT	
PLAN_ON_FILE	
PLANNED	

Value	Description
PORTABLE	
PROPOSED	
S_POWER	Secondary power supply in operation
SEMI_PERMANENT	
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

5.15.50.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_TOWER	Air Traffic Control Tower
ATC_FACILITY	Combined or Single (other than the airport control tower) Air Traffic Control Facility
BANK	Bank
BARN	barn
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.

Value	Description
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
WATER_TANK	Water Tank
TBD	to be determined
THEATER	Theater (any type)
TERMINAL	Airport Terminal building
TOWER	Tower
TOWN_HALL	Town Hall.
TOWNHOUSE	townhouse

5.15.51.CodeSurfaceCondition

Value	Description
GOOD	Good condition
POOR	Poor condition
FAIR	Fair condition
UNSAFE	Surface is deemed unsafe for operations
OTHER	

5.15.52.CodeSurfaceMaterial

Value	Description
AG	Asphalt grooved
Ags	Asphalt and turf
ANG	Asphalt ungrooved
BE	Bare earth
CA	Concrete and asphalt
CG	Concrete grooved

Value	Description
CGS	Concrete and turf
CNG	Concrete ungrooved
DS	Desert/Sand
EMAS	Description Engineered Material Arresting System
GR	Gravel
GS	Turf
SI	Snow/Ice
W	Water
FW	Fresh Water
SW	Salt Water
DT	Dirt

5.15.53.CodeSurfaceType

Value	Description
P	Paved (specially prepared hard surface)
S	Special (not a specially prepared hard surface)
U	Unpaved (specially prepared hard surface)

5.15.54.CodeTaxiwayType

Value	Description
AIR_TAXIWAY	Air taxiway
AIR_TLANE	Air taxilane
APRON	Apron taxiway
BYPASS	Bypass holding bay
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
LI_LANE	Lead-in taxilane
LO_TLANE	Lead-out taxilane
OTHER	Those not listed here
PARALLEL	Parallel taxiway
STUB	Stub taxiway
TURN_AROUND	Turn around taxiway

5.15.55.CodeThresholdType

Value	Description
Normal	An indication that the landing threshold corresponds to the end of the runway
Displaced	An indication that the landing threshold is located at a point other than the runway end.

5.15.56.CodeUseCode

Value	Description
T	Terminal
L	Low Altitude
H	High Altitude
C	Compass Locator
MH	
H	
HH	

5.15.57.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_EXiT_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.
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.

5.15.58.CodeVerticalStructureMaterial

Value	Description
COMPOSITION	Composition
CONCRETE	Concrete
METAL	Metal
ROCK	Rock
STONE_BRICK	Stone/brick
WOOD	Wood

5.15.59.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

5.15.60.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

APPENDIX A. Additional References, Glossary and Acronyms

A.1. REFERENCES AND PROJECT MATERIALS TO REVIEW

The contractor must become thoroughly familiar with each of the following documents and guidance.

A. The requirements in this guidance and attachments.

B. AC 150/5300-16, *General Guidance and Specifications for Aeronautical Surveys - Establishment Of Geodetic Control And Submission To The National Geodetic Survey.*

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-16/150_5300_16.pdf

C. AC 150/5300-17, *A General Specifications and guidance for Aeronautical Surveys - Airport Imagery Acquisition and Submission to the National Geodetic Survey*.

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5300-17A/150_5300_17a.pdf

D. AC 150/5340-1, *Standards for Airport Markings*.

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5340-1J/150_5340_1j.pdf

E. AC-150/5210-20, *Ground Vehicle Operations on Airports*.

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5210-20/150_5210_20.pdf

F. AC 150/5340–18, *Standards For Airport Sign Systems*.

http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5340-18D/150_5340_18D.pdf

G. NGS Aeronautical Survey Program:

http://www.ngs.noaa.gov/AERO/aero.html.

H. FAA Web site for location identifiers:

http://www.faa.gov/airports_airtraffic/air_traffic/publications/atpubs/LID/LIDHME.HTM

I. FAA Web site for airport managers.

http://www.faa.gov/airports_airtraffic/airports/airport_safety/airportdata_5010/

J. Input Formats and Specifications of the National Geodetic Survey Data Base, The “Blue Book”

http://www.ngs.noaa.gov/FGCS/BlueBook/

K Listing of airports with PACS and SACS and the dates that they were observed is available at:

http://www.ngs.noaa.gov/cgi-bin/airports.prl?TYPE=PACSAC

L. Aeronautical Information Manual, *Official Guide to Basic Flight Information and ATC Procedures*.

http://www.faa.gov/airports_airtraffic/air_traffic/publications/atpubs/aim/

APPROPRIATE PAGES FROM U.S. TERMINAL PROCEDURES

U.S. Terminal Procedures are published in 20 loose leaf or perfect bound volumes covering the conterminous U.S., Puerto Rico, and the Virgin Islands. A Change Notice is published at the midpoint between revisions in bound volume format. The latest edition of the U.S. Terminal Procedures can be obtained from FAA Aeronautical chart agents. The Terminal Procedures Publications include:

A. Instrument Approach Procedure (IAP) Charts: IAP charts portray the aeronautical data that is required to execute instrument approaches to airports. Each chart depicts the IAP, all related navigation data, communications information, and an airport sketch. Most procedures are designated for use with a specific electronic NAVAID, such as Instrument Landing System (ILS), Very High Frequency Omnidirectional Range (VOR), Nondirectional Radio Beacon (NDB), etc.

B. Airport Diagrams: Full page airport diagrams are designed to assist in the movement of ground traffic at locations with complex runway/taxiway configurations and provide information for updating geodetic position navigational systems aboard aircraft. (**NOTE:** *Airport Diagrams are not available for all airports.*)

APPROPRIATE PAGES FROM AIRPORT/FACILITY DIRECTORY

The Airport/Facility Directory is a manual that contains data on public use and joint use airports, seaplane bases, heliports, VFR airport sketches, NAVAIDS, communications data, weather data sources, airspace, special notices, and operational procedures. The Airport/Facility Directory includes data that cannot be readily depicted in graphic form: e.g., airport hours of operation, types of fuel available, runway data, lighting codes, etc. The Airport/Facility Directory is published every 56 days by the National Aeronautical Charting Office, FAA. The latest edition of the Airport/Facility Directory can be obtained from FAA Aeronautical chart agents.

FAA NATIONAL FLIGHT DATA DIGEST (NFDD)

A daily (except weekends and Federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

FAA FORM 5010, AIRPORT MASTER RECORD

The FAA Form 5010 is prepared for all public-use airports. This master record contains comprehensive data on airports, including obstacles. Much of the information on FAA Form 5010 comes from unverified sources. Often, obstacle heights and positions are estimates which have not been measured and verified by instruments. For these reasons, the Airport Master Record is to be consulted for informational purposes only.

A.2. GLOSSARY

Accuracy – The degree of conformity with a standard, or a value accepted as correct. Precision is the degree of uniformity of repeated measurements or events. For example, repeat measurements of the distance between two points may exhibit a high degree of precision by virtue of the relative uniformity of the measurements. However, if a "short" tape were used in the measurements, accuracy would be poor in that the measured distance would not conform to the true distance between the points. Surveying and mapping accuracy standards should include three elements: (1) a stated variation from a true value or a value accepted as correct, (2) the point to which the new value is relative, and (3) the probability that the new value will be within the stated variation. For example, "Horizontal accuracy will be 10 cm relative to the nearest Continuously Operating Reference Station (CORS) at the 95 percent confidence level."

Abeam Point – The point on a line that is nearest to an off line point (for example, a point on the runway centerline is "abeam" the Glide Slope Antenna when the distance from the centerline point to the antenna is at a minimum).

Accelerate-Stop Distance Available (ASDA) – The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

Aeronautical Beacon – A visual navigational aid displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a federal airway in mountainous terrain, or an obstruction. (Refer to **Airport Rotating Beacon** under **Airport Lighting**.)

Air Navigation Facility – Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and takeoff of aircraft. (Refer to **Navigational Aid**.)

Airport – An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

Airport Elevation – The highest point of an airport's usable runways measured in feet from mean sea level (technically, from the vertical datum).

Airport Lighting – Various lighting aids that may be installed on an airport. Types of airport lighting include:

- ***Airport Rotating Beacon (APBN) –*** A visual navigational aid 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.

- ***Approach Light System (ALS) –*** An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in conjunction with the ALS at some airports.

- ***Omnidirectional Approach Light System (ODALS)* –** Seven omnidirectional flashing lights located in the approach area of a nonprecision approach. 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.

- ***Precision Approach Path Indicator (PAPI)* –** A visual approach slope indicator normally consisting of light units similar to the VASI but in a single row of either two or four light units set perpendicular to the runway centerline. The row of light units is normally installed on the left side of the runway. Indications are as follows: Below glide path – all lights red; Slightly below glide path – three lights closest to runway red, other light white; On glide path – two lights closest to runway red, other two lights white; Slightly above glide path – light closest to runway red, other three lights white; Above glide path – all lights white.

- ***Pulsating Visual Approach Slope Indicator (PVASI)* –** A pulsating visual approach slope indicator normally consists of a single light unit projecting a two-color visual approach path into the final approach area of the runway upon which the indicator is installed. The on glide path indication is a steady white light. The slightly below glide path indication is a steady red light. If the aircraft descends further below the glide path, the red light starts to pulsate. The above glide path indication is a pulsating white light. The pulsating rate increases as the aircraft gets further above or below the desired glide slope.

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

- ***Runway End Identifier Lights (REIL)* –** 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.

- ***Threshold Lights* –** Fixed green lights arranged symmetrically left and right of the runway centerline identifying the runway end. When all light units are located outside the runway edge or runway edge extended, the runway end lights are considered to be “outboard.” If any light unit is located inside the runway edge or runway edge extended, the lights are considered to be “inboard.”

- ***Tri-Color Visual Approach Slope Indicator (TRVC)* –** A visual approach slope indicator normally consists 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. The below glide path indication is red; the above glide path indication is amber; and the on glide path indication is green.

- ***Visual Approach Slope Indicator (VASI)* –** 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 is "on path" if he 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.

Airport Reference Point (ARP) – The approximate geometric center of all usable runways. ARP is not monumented, therefore not recoverable on the ground.

Airport Surface Detection Equipment (ASDE) – Radar equipment specifically designed to detect all principal features on the surface of an airport, including aircraft and vehicular traffic, and to present the entire image on a radar indicator console in the control tower. This is used to augment visual observation by tower personnel of aircraft and/or vehicular movements on the runways and taxiways.

Airport Surveillance Radar (ASR) – Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 nautical miles.

Air Route Surveillance Radar (ARSR) – Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas.

Air Route Traffic Control Center (ARTCC) – A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.

Apparent Runway/Stopway Surface (ARS) – The surface that approximates a runway or stopway before the surface is squared off, shortened to good pavement, or otherwise adjusted to meet the criteria of a runway or stopway.

Apron – A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.

Approach Side – The side occupied by a landing aircraft before the aircraft has passed the feature.

Area Navigation – A method of navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigational signals or within the limits of a self-contained system capability. Area navigation systems include GPS, Inertial, and LORAN-C.

Area Navigation Approach (ANA) – An instrument approach procedure using an Area Navigation System.

Attributes or Attribute Data – Alphabetical and/or numeric information that describes particular characteristics of a geospatial feature, such as type, dimensions, usage, occupancy, etc.

Azimuth

- ***Astronomic Azimuth* –** At the point of observation, the angle measured from the vertical plane through the celestial pole and the vertical plane through the observed object. The astronomic azimuth is established directly from observations on a celestial body and is measured in the plane of the horizon. Astronomic azimuths differ from geodetic azimuths because of the deflection of the vertical which can be greater than one minute of arc in extreme cases. Astronomic azimuths may be reckoned clockwise or counter-clockwise, from either north or south, as established by convention.

- ***Geodetic* –** The angle at point A between the tangent to the meridian at A and the tangent to the geodesic from A to B whose geodetic azimuth is wanted. It may be reckoned clockwise from either geodetic north or south as established by convention. Because of earth curvature, the geodetic azimuth from A to B (forward azimuth) differs from the geodetic azimuth from

B to A (back azimuth) by other than 180 degrees, except where A and B have the same geodetic longitude or where the geodetic latitude of both points is zero. The "geodesic line"is the shortest surface distance between two points on the reference ellipsoid. A "geodetic meridian" is a line on the reference ellipsoid defined by the intersection of the reference ellipsoid and a plane containing the minor axis of that ellipsoid.

- ***Grid* –** The angle in the plane of projection between a straight line and the central meridian of a plane-rectangular coordinate system. Grid azimuths may be reckoned clockwise from either geodetic north or south as established by convention.

- ***Magnetic* –** At the point of observation, the angle between the vertical plane through the observed object and the vertical plane in which a freely suspended symmetrically magnetized needle, influenced by no transient artificial magnetic disturbance, will come to rest. Magnetic azimuths are reckoned clockwise from magnetic north.

Bench Mark – A relatively permanent natural or artificial material object bearing a marked point whose elevation above or below an adopted surface (datum) is known.

Blast Fence – A barrier that is used to divert or dissipate jet or propeller blast.

Blast Pad – A specially prepared surface placed adjacent to the ends of runways to eliminate the erosive effect of the high wind forces produced by airplanes at the beginning of their takeoff rolls.

Catenary – The curve theoretically formed by a perfectly flexible, uniformly dense and thick, inextensible cable suspended from two points. Also a cable suspended between two points having the approximate shape of a catenary.

Clearway – An area beyond the takeoff runway under the 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.

Collection – Any combination of data submitted by a provider at a given time.

Compass Locator – A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

Control Station – A point on the ground whose position and/or elevation is used as a basis for obtaining positions and/or elevations of other points.

Continuously Operating Reference Station (CORS) – A permanent GPS facility whose GPS receiver continuously provides observables from the GPS satellites, allowing stations occupied temporarily by GPS receivers to be differentially positioned relative to it. CORS are related to the NAD83 coordinate system at the 1-3 cm level either by being collocated at VLBI sites which were used to define the coordinate system or by being differentially positioned relative to such a collocated GPS station.

Datum – In general, a point, line, surface, or set of values used as a reference. A "geodetic datum" is a set of constants specifying the coordinate system and reference used for geodetic control (refer to **Control Station**), i.e. for calculating coordinates of points on the earth. At least eight constants are needed to form a complete datum: three to specify the location of the origin of the coordinate system; three to

specify the orientation of the coordinate system; and two to specify the dimensions of the reference ellipsoid. Any point has a unique X, Y, Z datum coordinate which can be transformed into latitude, longitude, and ellipsoid height (height relative to the ellipsoid). A "horizontal control datum" is a geodetic datum specified by two coordinates (latitude and longitude) on the ellipsoid surface, to which horizontal control points are referenced. A "vertical datum" is a theoretical equipotential surface with an assigned value of zero to which elevations are referenced. (Refer to **GEOID**.)

Datum Tie – The process of determining, through appropriate survey methods, a position (horizontal tie) or elevation (vertical tie) of a new point relative to a control station with established datum values such as a control station in the National Spatial Reference System (NSRS). The new point may be a permanent survey monument. This process ensures that the new point will have the proper relationship to NSRS and to all other points tied to NSRS.

Direction Finder (DF) – A radio receiver equipped with a directional sensing antenna used to take bearings on a radio transmitter.

Distance Measuring Equipment (DME) – Equipment (airborne and ground) used to measure the slant range distance of an aircraft from the DME navigational aid in nautical miles. DME is usually frequency paired with other navigational aids such as a VOR or localizer.

Displaced Threshold – A threshold that is located at a point on the runway other than the designated runway end. The displaced area is available for takeoff or rollout of aircraft, but not for landing. A displaced threshold does not mark the end of a runway.

Ellipsoid – Refer to **Reference Ellipsoid**.

Ellipsoid Height – The distance between a point and the reference ellipsoid taken along the perpendicular to the ellipsoid. Ellipsoid heights are the heights resulting from GPS observations. Ellipsoid heights are positive if the point is above the ellipsoid. Ellipsoid Height = GEOID Height + Orthometric Height.

Feature – A manmade or natural object that appears in the real world such as a building, runway, navigational aid or river.

Feature Type – A collection of all features of a given type such as all runways or all buildings. Feature Types are analogous to layers in many GIS applications and are also referred to as Entity Types and Feature Classes in other standards.

Feature Instance – A specific feature such as runway 10/28 at Baltimore Washington International Airport.

Federal Base Network (FBN) – A fundamental reference network of permanently monumented control stations in the United States at a 1 degree x 1 degree nominal spacing, established, maintained, and monitored by the National Geodetic Survey, providing precise latitude, longitude, ellipsoidal height, orthometric height, and gravity values. The FBN is a very precise subset of the National Spatial Reference System.

First Good Pavement (FGP) – The first point on a paved surface through which a perpendicular line to the surface centerline can be constructed to define a runway or stopway end. While this point need not be on the runway/stopway centerline, it must be located so that the resulting runway/stopway surface is rectilinear with full structural integrity to the end. The FGP location is a fundamental factor in establishing runway/stopway length and width.

Flight Path – A line, course, or track along which an aircraft is flying or intended to be flown.

Frangible – A type of fixture or fixture mounting designed to break at a predetermined point if accidentally struck by an aircraft, resulting in minimal damage to the aircraft.

GEOID – The theoretical surface of the earth that coincides everywhere with approximate mean sea-level. The GEOID is an equipotential surface to which, at every point, the plumb line is perpendicular. Because of local disturbances of gravity, the GEOID is irregular in shape.

GEOID Height – The distance, taken along a perpendicular to the reference ellipsoid, between the reference ellipsoid and the GEOID. The GEOID height is positive if the GEOID is above the reference ellipsoid. (GEOID height is negative for the conterminous United States). GEOID Height = Ellipsoidal Height – Orthometric Height.

Geospatial Data, Geospatially-Referenced Data or Geospatial Vector Data – Data that identifies the geographic location (2D or 3D coordinates) and characteristics (feature attributes) of natural or constructed features and boundaries on the earth. This information may be derived from remote sensing and surveying technologies. The features are represented by a point, line, or polygon. The position of a point feature is described by a single coordinate pair (or triplet for three dimensional data). The spatial extent of a line feature is described by a string of coordinates of points lying along the line, while the extent of a polygon feature is described by treating its boundary as a line feature. Vector data may be stored in a sequential, a chain node, or a topological data structure.

Global Positioning System (GPS) – A space-based radio-positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information and precise time on a continuous global basis, to an unlimited number of properly equipped users.

Ground Controlled Approach (GCA) – A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted with airport surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR).

Helipad – A small designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

Heliport – An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters, including its buildings and facilities if any.

Heliport Reference Point (HRP) – The geographic position of the heliport expressed in latitude and longitude at (1) the center of the final approach and takeoff (FATO) area or the centroid of multiple FATOs for heliports having visual and nonprecision instrument approach procedures or (2) the center of the final approach reference area when the heliport has a precision instrument approach.

Horizontal Survey Point – A point that represents the horizontal position of a feature. This point may be located on the feature or located between feature components. For example, the horizontal survey point for a Precision Approach Path Indicator (PAPI) system is the center of the light array which falls between light units.

Inboard/Outboard Lights – Used in reference to runway end and threshold lights. The light configuration is considered “inboard” if the center of any light unit in the light array is located inside the runway edge or edge extended. The light configuration is considered “outboard” if all light centers in the

light array are located outside the runway edge or edge extended. In this definition, "light array" includes the lights on both sides of the runway.

Instrument Landing System (ILS) – A precision instrument approach system which normally consists of the following electronic components and visual aids: Localizer, Middle Marker, Glide Slope, Approach Lighting, Outer Marker.

Instrument Runway – A runway equipped with electronic and visual navigational aids for which a precision or nonprecision approach procedure having straight-in landing minimums have been approved.

International Civil Aviation Organization (ICAO) – A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

Landing Area – Any locality used or intended to be used for the landing and takeoff of aircraft. The locality may be on on land, water, or structure including airports/heliports, and intermediate landing fields whether or not facilities are provided for shelter, servicing, or for receiving or discharging passengers or cargo.

Landing Direction Indicator – A device, usually a tetrahedron, which visually indicates the direction in which landings and takeoffs should be made.

Leveling – The process of determining the difference in elevation between two points. In geodetic leveling, this process results in a vertical distance from a vertical datum.

- ***Direct*** – The determination of differences in elevation by means of a series of horizontal observations on a graduated rod. The leveling instrument maintains a horizontal line of sight through spirit leveling or a compensation mechanism. The rod is observed while it is resting on a point of known elevation (backsight) and then, without disturbing the elevation of the leveling instrument, is observed a second time while resting on the unknown point (foresight). The differential in rod readings is applied to the starting elevation to determine the elevation of the unknown.

- ***Indirect*** – The determination of differences in elevation by means other than differential leveling, such as trigonometric leveling. In trigonometric leveling, the vertical angle and distance from the instrument to the point of unknown elevation are measured, and the difference in elevation between the instrument and the unknown point is computed using trigonometry.

Local Control – A control station or network of control stations in a local area used for referencing local surveys. Local control may or may not be tied to the National Spatial Reference System. (See Control Station).

Localizer (LOC) – The component of an ILS which provides course guidance to the runway.

Localizer Back Course – The course line defined by the localizer signal along the extended centerline of the runway in the opposite direction from the normal localizer approach course (front course.)

Localizer Type Directional Aid (LDA) – A navigational aid used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not part of a complete ILS and is not aligned with the runway.

Long Range Navigation (LORAN) – An electronic navigation system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. LORAN A operates in the 1750 - 1950 kHz frequency band. LORAN C and D operate in the 100 - 110 kHz frequency band.

Marker Beacon – An electronic navigational facility transmitting a 75 MHz vertical fan or bone-shaped radiation pattern to be received by aircraft flying overhead. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot aurally and visually that he is passing over the facility.

- ***Back Course Marker (BCM)*** – When installed, normally indicates the localizer back course final approach fix where approach descent is commenced.

- ***Inner Marker (IM)*** – A marker beacon, used with an ILS Category II precision approach, located between the middle marker and the end of the ILS runway and normally located at the point of designated decision height (normally 100 feet above the touchdown zone elevation) on the ILS Category II approach. It also marks progress during a ILS Category III approach.

- ***Middle Marker (MM)*** – A marker beacon that defines a point along the glideslope of an ILS, normally located at or near the point of decision height for ILS Category I approaches.

- ***Outer Marker (OM*)** – A marker beacon at or near the glideslope intercept altitude of an ILS approach. The outer marker is normally located four to seven miles from the runway threshold on the extended centerline of the runway.

Mean Sea Level (MSL) – The average location of the interface between the ocean and atmosphere, over a period of time sufficiently long so that all random and periodic variations of short duration average to zero.

Metadata – Information about the data itself such as source, accuracy, dates for which the data are valid, security classification, etc. Metadata is essential in helping users determine the extent on which they can rely on a given data item to make decisions.

Minimum Safe Altitude Warning (MSAW) – A function of the ARTS III computer that aids the controller by alerting him when a tracked Mode C equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude.

Minimums – Weather condition requirements established for a particular operation or type of operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight etc.

Missed Approach – A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing.

Movement Area – The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

National Airspace System (NAS) – The common network of U.S. airspace air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules,

regulations, and procedures, technical information, and manpower and material. Included are system components shared jointly with the military.

National Flight Data Center (NFDC) – A facility in Washington, D.C., established by the FAA to operate a central aeronautical information service for the collection, validation, and dissemination of aeronautical data in support of the activities of government, industry, and the aviation community. The information is published in the "National Flight Data Digest."

National Flight Data Digest (NFDD) – A daily (except weekends and Federal holidays) publication of flight information related to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

National Spatial Reference System (NSRS) – A network of permanent survey monuments located throughout the United States with accurately determined positions (horizontal network) and/or elevations (vertical network). Gravity values, not always monumented, are also part of NSRS. Responsibility for establishing and maintaining NSRS rests with the National Geodetic Survey under the U.S. Department of Commerce. Current authority is contained in United States Code, Title 33, USC 883a as amended, and specifically defined by Executive Directive, Bureau of the Budget (now Office of Management and Budget) Circular No. A-16 Revised.

Navigable Airspace – Airspace at and above the minimum flight altitude prescribed in the FARs, including airspace needed for safe takeoff and landing.

Navigational Aid (NAVAID) – Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight. (Refer to Air Navigation Facility).

Nondirectional Beacon (NDB) – An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" or track to or from the station. When the NDB is installed in conjunction with an Instrument Landing System marker, it is normally called a Compass Locator.

Nonprecision Approach Procedure – A standard instrument approach procedure in which no electronic glide slope is provided; e.g., VOR, TACAN, NDB, LOC, ASR, LDS, and SDF approaches.

Notice to Airmen (NOTAM) – A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

Obstacle – Any object that has a vertical element to it and may or may not penetrate an obstruction identification surface.

Obstruction – Any object that penetrates an obstruction identification surface.

Obstruction Identification Surface (OIS) – Any imaginary surface authorized by the FAA to identify obstructions. Any object that penetrates an OIS is an obstruction, by definition.

- ***Specified OIS*** – Any OIS other than a supplemental OIS.

- ***Supplemental OIS*** – An OIS designated by appropriate FAA authorities as a supplemental OIS. A supplemental OIS, when implemented, will normally lie below a specified OIS and is intended to provide additional obstruction information. An object that penetrates a supplemental OIS only is a supplemental obstruction.

Offset NAVAID – A NAVAID used during the final approach segment of a straight in instrument approach and not located on the runway centerline or centerline extended.

Orthometric Height – The distance taken along the plumb line between a point and the GEOID. Orthometric heights are positive if the point is above the GEOID. Orthometric Height = Ellipsoid Height – GEOID Height.

Orthophoto – An aerial image that has been taken from above (either from an aircraft or a satellite) and has been spatially corrected so that features shown on the photo are displayed in their actual geographic position within a specified range of tolerance.

Outboard Lights – Refer to **Inboard/Outboard Lights.**

Photogrammetry – The process of creating vector data such as building outlines and elevation contours from stereo imagery (pairs of images taken of the same location but at different angles).

Positional Accuracy – The difference between a geospatial feature's displayed position and its actual position. Absolute positional accuracy is the difference between a geospatial feature's displayed position and its actual position on the face of the earth. Relative positional accuracy is the difference between a geospatial feature's displayed position and that of other geospatial features in the same data set.

Precision – The smallest separation that can be represented by the method employed to make the positional statement which is the number of units or digits to which a measured or calculated value is expressed and used

Precision Approach Procedure – A standard instrument approach procedure in which an electronic glideslope/glidepath is provided; e.g., GPS, ILS, and PAR approaches.

Precision Approach Radar (PAR) – Radar equipment in some ATC facilities operated by FAA and/or the military services at joint use civil/military locations and separate military installations used to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain non-radar approaches but is primarily used to conduct a precision instrument approach wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), glidepath (elevation), and distance (range) from the touchdown point on the runway as displayed on the radar scope.

Primary Airport Control Station (PACS) – A control station established in the vicinity of, and usually on, an airport, and tied directly to the National Spatial Reference System. PACS must be declared PACS by the National Geodetic Survey and must meet the specific siting, construction, and accuracy requirements for PACS.

Progressive Taxi – Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

Published Data – Data officially issued for distribution to the public.

Radio Detection and Ranging (RADAR) – A device which provides information on range, azimuth, and/or elevation of objects in the path of the transmitted pulse by measuring the time interval between transmission and reception of radio pulses and correlating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation.

- ***Primary Radar*** – A radar system in which a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at the site for processing and display at an air traffic control facility.

- ***Secondary Radar/Radar Beacon (ATCRBS)*** – A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radar pulses transmitted from the searching transmitter/receiver (interrogator) site are received in the cooperative equipment and used to trigger a distinctive transmission from the transponder. This reply transmission (rather than a reflected signal) is then received back at the transmitter/receiver site for processing and display at an air traffic control facility.

Radar Approach – An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR).

Radio Beacon – Refer to **Nondirectional Beacon**.

Ramp – Refer to **Apron**.

Reference Ellipsoid – A geometric figure comprising one component of a geodetic datum, usually determined by rotating an ellipse about its shorter (polar) axis, and used as a surface of reference for geodetic surveys. The reference ellipsoid closely approximates the dimensions of the GEOID. Certain ellipsoids fit the GEOID more closely for various areas of the earth. Elevations derived directly from satellite observations are relative to the ellipsoid and are called ellipsoid heights.

Relocated Threshold – A threshold located at a point on the runway other than the beginning of the full strength pavement. The area between the former threshold and the relocated threshold is not available for the landing or takeoff of aircraft. Thus, a relocated threshold marks the end of the runway. The precise end is on the landing approach edge of the relocated threshold paint bar. The abandoned runway area may or may not be available for taxiing.

Remote Communications Outlet (RCO) – An unmanned communications facility remotely controlled by air traffic personnel. RCOs serve flight service stations. Remote Transmitter/Receivers (RTR) serve terminal ATC facilities.

Resolution – The smallest spacing between two display elements expressed as dots per inch, pixels per line, or lines per millimeter.

Runway – A defined rectangular area prepared for the landing and takeoff run of aircraft along its length in a land airport. Being exactly rectangular, it excludes narrow, rounded, deteriorated, and irregular ends that are not as wide as the general or overall width of the runway. The runway width is the physical width that extends over the entire length of the rectangle. The runway length does not include blast pad, clearway, or stopway surfaces. Displaced thresholds are included in the physical length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees: e.g., Runway 10, Runway 25.

Runway Centerline – A line connecting the two opposite runway end points. The line may be physically marked on the surface of the runway.

Runway End Point – The point at the runway end halfway between the edges of the runway.

Runway Length – 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.

Remote Transmitter/Receiver (RTR) – Refer to **Remote Communications Outlet.**

Schema – A logical diagram that shows the structure and interrelationships between different feature types of the data standard or model.

Secondary Airport Control Station (SACS) – A control station established in the vicinity of, and usually on, an airport, and tied directly to the Primary Airport Control Station. SACS must be declared SACS by the National Geodetic Survey and must meet the specific sitting, construction, and accuracy requirements for SACS.

Simplified Directional Facility (SDF) – A navigational aid 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.

Spatial Data – Data that depicts a real world feature such as a road, building or runway on a map. The most basic types of spatial data are points, lines and polygons but spatial data can also include orthophotos and other more complex forms of locational information.

Specially Prepared Hard Surface (SPHS) – A concrete, asphalt, or other paved surface, or an unpaved surface that has been specially treated to stabilize the surface, protect the subsurface, or provide a smoother rolling surface for aircraft. Unpaved SPHSs include compacted gravel, and gravel treated with a stabilizing bituminous material.

Stand Alone Weather Station (SAWS) – A flexible and easy to maintain aviation weather station. It can be used as ASOS backup, which measures the critical parameters of: wind speed and direction, gust, altimeter setting, dew point, air temperature, and relative humidity.

State Plane Coordinate System – A series of plane-rectangular coordinate systems established by the U.S. Coast and Geodetic Survey for the entire United States, with a separate system for each state. A mathematical relationship exists between state plane and geodetic coordinates, one being easily transformed into the other. The advantage of the State Plane Coordinate System is that it permits survey computations for small areas to be performed using plane trigonometry (as opposed to more complex spherical trigonometry), while still yielding very nearly the true angles and distances between points.

Stopway – An area beyond the takeoff runway which is able to support the airplane during an aborted takeoff without causing structural damage to the airplane. It is centered upon the extended centerline of the runway, not narrower than the runway, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

Supplemental Profile Point – A runway/stopway point selected so that a straight line between any two adjacent published runway/stopway points will be no greater than one foot from the runway/stopway surface.

Supporting Feature – A feature such as a runway number or threshold light set which does not precisely define a runway/stopway survey point, but provides evidence that the survey point was correctly selected.

Surface Model Library (SML) – An NGS provided library of functions used to create and analyze the mathematical surface models of Obstruction Identification Surfaces (OIS). The SML will be available as a Dynamic Link Library (DLL). NGS will update the SML as needed to reflect changes in the definitions of the OIS.

Survey Point Locator (SPL) – A tangible feature, such as the approach side of a threshold bar, or intangible feature (such as a Trim Line) whose intersection with the runway/stopway centerline defines a survey point.

Take-off Distance Available (TODA) – The length of the take-off run available plus the length of the clearway, if provided.

Take-off Run Available (TORA) – The length of the runway declared available and suitable for the ground run of an airplane take-off.

Tactical Air Navigation (TACAN) – An ultra-high frequency electronic rho-theta air navigational aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.

Taxiway – A defined path established for the taxiing of aircraft from one part of an airport to another.

Tetrahedron – A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of the tetrahedron points in the direction of landing.

Threshold (THLD) – The beginning of that portion of the runway available for landing. A displaced threshold (DTHLD) is a threshold that is located at a point on the runway other than the designated beginning of the runway.

Touchdown Side – The side occupied by a landing aircraft after the aircraft has passed the feature.

Touchdown Zone (TDZ) – The first 3,000 feet of the runway beginning at the threshold.

Touchdown Zone Elevation (TDZE) – The highest elevation in the Touchdown Zone.

Traffic Pattern – The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

Transmissometer (TMOM) – An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement source for determining runway visual range (RVR) and runway visibility value (RVV).

Transponder Landing System (TLS) – Transponder landing system providing azimuth and elevation guidance to aircraft on approach.

Trim Line – An imaginary line constructed perpendicular to the runway/stopway centerline which establishes the location of a runway/stopway end or displaced threshold.

V_1 – The takeoff decision speed. If a system failure occurs before V_1, the takeoff is aborted. If the failure occurs at or above V_1, the pilot is committed to continue the takeoff.

Vertical Survey Point – A point that represents the elevation position of a feature. This point may be located on the top or base of the feature or located between feature components. For example, the vertical survey point for a Precision Approach Path Indicator (PAPI) system is the ground at the center of the light array which falls between light units.

Vertical Takeoff and Landing (VTOL) Aircraft – Aircraft capable of vertical climbs and/or descents and of using very short runways or small areas for takeoff and landings. These aircraft include, but are not limited to, helicopters.

Very High Frequency Omnidirectional Range Station (VOR) – A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, referenced from magnetic north.

Very High Frequency Omnidirectional Range/Tactical Air Navigation (VORTAC) – A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site.

Visual Approach – An approach conducted on an instrument flight rules (IFR) flight plan which authorizes the pilot to proceed visually to the airport. The pilot must have either the airport or preceding aircraft in sight at all times.

Visual Glideslope Indicator – A navigational aid that provides vertical visual guidance to aircraft during approach to landing by either radiating a directional pattern of high intensity light into the approach area or providing lighted or unlighted panels which can be aligned by the pilot, thereby allowing the pilot to determine if the aircraft is above, below, or on the prescribed glidepath. (See **Airport Lighting**.)

Waypoint – A predetermined geographical position used for route/instrument approach definition or progress reporting purposes. The point is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.

Wide Area Augmentation System (WAAS) – The total FAA system designed and built to meet the mission needs of insuring satellite integrity for using GPS for required navigation performance (RNP) in the National Airspace System and of improving accuracy to support precision approaches using GPS augmented with the WAAS.

A.3. ACRONYMS AND WORD PHRASES

The following list presents the approved contractions for data:

WORD/ PHRASE	ACRONYM
A	
Abandoned	ABND
Above Ground Level	AGL
Accelerate-Stop Distance Available	ASDA
Advisory Circular	AC
Architecture, Engineering and Construction	A/E/C
Aeronautical Information Exchange Model	AIXM
Aeronautical Information Service	AIS
Agricultural	AG
Air Route Surveillance Radar	ARSR
Aircraft	ACFT
Airport	ARPT
Airport Beacon	APBN
Airport District Office	ADO
Airport Facility Directory	AFD
Airport Layout Plan or Airport Location Point	ALP
Airport Obstruction Chart	AOC
Airport Reference Point	ARP
Airport Surface Detection Equipment	ASDE
Airport Surveillance Radar	ASR
Airport Traffic Control Tower	ATCT
Airway Beacon	AWYBN
American Institute of Architects	AIA
American National Standards Institute	ANSI
American Society for Testing and Materials	ASTM
Anemometer	AMOM
Antenna	ANT
Approach	APCH
Approach Light	APP LT
Approach Light System	ALS
Area Navigation Approach	ANA
Arresting Gear	A-GEAR
Automated Flight Service Station	AFSS
Automated Surface Observing System	ASOS
Automatic Weather Observing/Reporting System	AWOS
B	
Back Course Marker	BCM
Bridge	BRDG
Building	BLDG

C

Centerline ..... C/L
Ceilometer ..... CLOM
Chimney ..... CHY
Closed ..... CLSD
Common Traffic Advisory Frequency ..... CTAF
Computer Aided Drafting and Design ..... CADD
Construction ..... CONST
Continuously Operating Reference Station ..... CORS

D

Design File (MicroStation) ..... DGN
Department of Defense (U.S.) ..... DOD
Department of Transportation (U.S.) ..... DOT
Direction Finder ..... DF
Displaced Threshold ..... DTHLD
Distance Measuring Equipment ..... DME
Distance to Centerline ..... DCLN
Distance to Runway End ..... DEND
Distance to Threshold ..... DTHR
Drawing File (AutoDesk or AutoCAD) ..... DWG

E

Electrical ..... ELEC
Elevation ..... EL
Elevation ..... ELEV
Ellipsoid ..... ELLIP
Engine Out Departure ..... EOD
Equipment ..... EQUIP
Estimated Maximum Elevation ..... EME

F

Fan Marker ..... FM
Federal Aviation Administration ..... FAA
Federal Geographic Data Committee ..... FGDC
Flagpole ..... FLGPL
Flight Service Station ..... FSS

G

Geographic Information System ..... GIS
Geographic Markup Language ..... GML
Glide Slope ..... GS

Global Positioning System....GPS
Ground....GRD
Ground Control Approach....GCA

H

Hangar....HGR
Height Above Airport....HAA
Height Above Runway....HAR
Height Above Touchdown....HAT
Heliport Reference Point....HRP
Horizontal....HORZ
Horizontal Survey Point....HSP

I

Inner Marker....IM
Inoperative....INOP
International Civil Aviation Organization....ICAO
International Organization for Standards....ISO
Instrument Flight Rules....IFR
Instrument Landing System....ILS
Instrument Meteorological Conditions....IMC
International Civil Aviation Organization....ICAO
International Earth Rotation Service
Terrestrial Reference Frame....ITRF
Intersection....INTXN

L

Lead In Lighting System....LDIN
Light....LT
Lighted....LTD
Localizer....LOC
Localizer Type Directional Aid....LDA
Localizer Performance with Vertical Guidance....LPV
Locator Middle Marker....LMM
Locator Outer Marker....LOM

M

Magnetic Variation....VAR
Mean Sea Level....MSL
Microwave....MCWV
Microwave Landing System....MLS
Microwave Landing System Azimuth Guidance....MLSAZ
Microwave Landing System Elevation Guidance....MLSEL

Middle Marker ..... MM
Monument ..... MON

N

National Airspace System ..... NAS
National Flight Data Center ..... NFDC
National Flight Data Digest ..... NFDD
National Geodetic Survey ..... NGS
National Geodetic Vertical Datum of 1929 ..... NGVD 29
National Geospatial Intelligence Agency ..... NGA
National Oceanic and Atmospheric Administration ..... NOAA
National Ocean Service ..... NOS
National Spatial Reference System ..... NSRS
Nautical Mile ..... NM
Navigational Aid ..... NAVAID
Nondirectional Radio Beacon ..... NDB
North American Datum of 1927 ..... NAD27
North American Datum of 1983 ..... NAD83
North American Vertical Datum of 1988 ..... NAVD88
Not Commissioned ..... NCM
Not to Exceed ..... NTE
Notice to Airmen ..... NOTAM

O

Observation ..... OBS
Obstruction ..... OBST
Obstruction Identification Surface ..... OIS
Obstruction Lighted ..... OL
Obstruction Light On ..... OL ON
Omnidirectional Approach Light System ..... ODALS
Orthometric ..... ORTHO
Out Of Service ..... OTS
Outer Marker ..... OM

P

Point of Contact ..... POC
Permanent Survey Mark ..... PSM
Precision Approach Path Indicator ..... PAPI
Precision Approach Radar ..... PAR
Primary Airport Control Station ..... PACS
Pulsating Visual Approach Slope Indicator ..... PVASI

R

Railroad ..... RR
Radio Technical Commission for Aeronautics ..... RTCA
Reflector ..... RFLTR
Relocated ..... RELCTD
Remote Communications Outlet ..... RCO
Remote Transmitter/Receiver ..... RTR
Required Navigation Performance ..... RNP
Road ..... RD
Road (Non-interstate) ..... RD (N)
Road (Interstate) ..... RD (I)
Runway ..... RWY
Runway Alignment Indicator Lights ..... RAIL
Runway End Identifier Lights ..... REIL
Runway Visual Range ..... RVR

S

Secondary Airport Control Station ..... SACS
Sensitive Security Information ..... SSI
Simplified Directional Facility ..... SDF
Spatial Data Standards for Facilities,
Infrastructure and Environment ..... SDSFIE
Specially Prepared Hard Surface ..... SPHS
Stack ..... STK
Stand Alone Weather Station ..... SAWS
Standard Instrument Departure ..... SID
Standard Terminal Arrival ..... STAR
Standpipe ..... SPIPE
Stopway ..... STWY

T

Tactical Air Navigation Aid ..... TACAN
Tank ..... TK
Taxiway ..... TWY
Temporary ..... TMPRY
Threshold ..... THLD
Take-off Distance Available ..... TODA
Take-off Run Available ..... TORA
Touchdown Reflector ..... TDR
Touchdown Zone ..... TDZ
Touchdown Zone ..... Elevation TDZE
Tower ..... TWR
Transmissometer ..... TMOM
Transmission Tower ..... TRMSN TWR
Transponder Landing System ..... TLS
Tri-color Visual Approach Slope Indicator ..... TRCV

U

Under Construction ..... UNC
United States Geological Survey ..... USGS
Until Further Notice ..... UFN

V

Vertical ..... VERT
Vertical Navigation ..... VNAV
Vertical Survey Point ..... VSP
Very High Frequency Omnidirectional Range ..... VOR
Visual Approach Slope Indicator ..... VASI
Visual Flight Rules ..... VFR
Visual Meteorological Conditions ..... VMC
VOR/Tactical Air Navigation ..... VORTAC

W

Wide Area Augmentation System ..... WAAS
Wind Direction Indicator ..... WDI
Wind Tee ..... WTEE
Wind Tetrahedron ..... WTET
Windsock ..... WSK
World Geodetic System of 1984 ..... WGS 84

Z

Z Marker ..... ZM

ACRONYM	WORD/ PHRASE
A	
ABND	Abandoned
AC	Advisory Circular
ACFT	Aircraft
ADO	Airport District Office
A/E/C	Architecture/Engineering/Construction
AFD	Airport Facility Directory
AFSS	Automated Flight Service Station
AG	Agricultural
A-GEAR	Arresting Gear
AGL	Above Ground Level
AIA	American Institute of Architects
AIS	Aeronautical Information Service
AIXM	Aeronautical Information Exchange Model
ALP	Airport Location Point
ALS	Approach Light System
AMOM	Anemometer
ANA	Area Navigation Approach
ANSI	American National Standards Institute
ANT	Antenna
AOC	Airport Obstruction Chart
APBN	Airport Beacon
APCH	Approach
APP LT	Approach Light
ARP	Airport Reference Point
ARPT	Airport
ARSR	Air Route Surveillance Radar
ASDA	Accelerate-Stop Distance Available
ASDE	Airport Surface Detection Equipment
ASOS	Automated Surface Observing System
ASR	Airport Surveillance Radar
ASTM	American Society for Testing and Materials
ATCT	Airport Traffic Control Tower
AWOS	Automatic Weather Observing/Reporting System
AWYBN	Airway Beacon
B	
BCM	Back Course Marker
BLDG	Building
BRDG	Bridge

C

CADD	Computer Aided Drafting and Design
C/L	Centerline
CHY	Chimney
CLOM	Ceilometer
CLSD	Closed
CONST	Construction
CORS	Continuously Operating Reference Station
CTAF	Common Traffic Advisory Frequency

D

DCLN	Distance to Centerline
DEND	Distance to Runway End
DF	Direction Finder
DGN	Microstation Design File
DME	Distance Measuring Equipment
DoD	Department of Defense (U.S.)
DOT	Department of Transportation (U.S.)
DTHLD	Displaced Threshold
DTHR	Distance to Threshold
DWG	AutoDesk or AutoCAD Drawing File

E

EL	Elevation
ELEC	Electrical
ELEV	Elevation
ELLIP	Ellipsoid
EME	Estimated Maximum Elevation
EOD	Engine Out Departure
EQUIP	Equipment

F

FAA	Federal Aviation Administration
FGDC	Federal Geographic Data Committee
FLGPL	Flagpole
FM	Fan Marker
FSS	Flight Service Station

G

GCA	Ground Control Approach
GIS	Geographic Information System

GML	Geographic Markup Language
GPS	Global Positioning System
GRD	Ground
GS	Glide Slope

H

HAA	Height Above Airport
HAR	Height Above Runway
HAT	Height Above Touchdown
HGR	Hangar
HORZ	Horizontal
HRP	Heliport Reference Point
HSP	Horizontal Survey Point

I

ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IM	Inner Marker
IMC	Instrument Meteorological Conditions
INOP	Inoperative
INTXN	Intersection
ISO	International Standards Organization
ITRF	International Earth Rotation Service Terrestrial Reference Frame

L

LDIN	Lead In Lighting System
LT	Light
LDA	Localizer Type Directional Aid
LMM	Locator Middle Marker
LOC	Localizer
LOM	Locator Outer Marker
LPV	Localizer Performance with Vertical Guidance
LTD	Lighted

M

MCWV	Microwave
MLS	Microwave Landing System
MLSAZ	Microwave Landing System Azimuth Guidance

MLSEL ..... Microwave Landing System Elevation Guidance
MM ..... Middle Marker
MON ..... Monument
MSL ..... Mean Sea Level

N

NAD27 ..... North American Datum of 1927
NAD83 ..... North American Datum of 1983
NAVD88 ..... North American Vertical Datum of 1988
NAVAID ..... Navigational Aid
NCM ..... Not Commissioned
NDB ..... Nondirectional Radio Beacon
NFDC ..... National Flight Data Center
NFDD ..... National Flight Data Digest
NGA ..... National Geospatial Intelligence Agency
NGS ..... National Geodetic Survey
NGVD29 ..... National Geodetic Vertical Datum of 1929
NM ..... Nautical Mile
NOAA ..... National Oceanic and Atmospheric Administration
NOS ..... National Ocean Service
NOTAM ..... Notice to Airmen
NSRS ..... National Spatial Reference System
NTE ..... Not to Exceed

O

OBS ..... Observation
OBST ..... Obstruction
ODALS ..... Omnidirectional Approach Light System
OIS ..... Obstruction Identification Surface
OL ..... Obstruction Lighted
OL ON ..... Obstruction Light On
OM ..... Outer Marker
ORTHO ..... Orthometric
OTS ..... Out Of Service

P

PACS ..... Primary Airport Control Station
PAPI ..... Precision Approach Path Indicator
PAR ..... Precision Approach Radar
POC ..... Point of Contact
PSM ..... Permanent Survey Mark

PVASI ..... Pulsating Visual Approach Slope Indicator

R

RAIL ..... Runway Alignment Indicator Lights
RCO ..... Remote Communications Outlet
RD ..... Road
REIL ..... Runway End Identifier Lights
RELCTD ..... Relocated
RFLTR ..... Reflector
RD (I) ..... Road (Interstate)
RD (N) ..... Road (Non-interstate)
RNP ..... Required Navigation Performance
RR ..... Railroad
RTCA ..... Radio Technical Commission for Aeronautics
RTR ..... Remote Transmitter/Receiver
RVR ..... Runway Visual Range
RWY ..... Runway

S

SACS ..... Secondary Airport Control Station
SAWS ..... Stand Alone Weather Station
SDF ..... Simplified Directional Facility
SDSFIE ..... Spatial Data Standards for Facilities, Infrastructure and Environment
SID ..... Standard Instrument Departure
SPHS ..... Specially Prepared Hard Surface
SPIPE ..... Standpipe
SSI ..... Sensitive Security Information
STAR ..... Standard Terminal Arrival
STK ..... Stack
STWY ..... Stopway

T

TACAN ..... Tactical Air Navigation Aid
TDR ..... Touchdown Reflector
TDZ ..... Touchdown Zone
TDZE ..... Touchdown Zone Elevation
THLD ..... Threshold
TK ..... Tank
TMOM ..... Transmissometer
TMPRY ..... Temporary
TODA ..... Take-off Distance Available
TORA ..... Take-off Run Available

TRCV	Tri-color Visual Approach Slope Indicator
TRMSN TWR	Transmission Tower
TRS	Transponder Landing System
TWR	Tower
TWY	Taxiway

U

UFN	Until Further Notice
UNC	Under Construction
USGS	United States Geological Survey

V

VAR	Magnetic Variation
VASI	Visual Approach Slope Indicator
VERT	Vertical
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VNAV	Vertical Navigation
VOR	Very High Frequency Omnidirectional Range
VORTAC	VOR/Tactical Air Navigation
VSP	Vertical Survey Point

W

WAAS	Wide Area Augmentation System
WDI	Wind Direction Indicator
WGS 84	World Geodetic System of 1984
WSK	Windsock
WTEE	Wind Tee
WTET	Wind Tetrahedron

Z

ZM	Z Marker

APPENDIX B. Aeronautical Survey Guidance and Specifications

B.1. AIRPORT REFERENCE POINT (ARP) COMPUTATION

The Airport Reference Point (ARP) is the approximate geometric center of all usable runways based on the ultimate configuration for the airport. The ARP position computation is somewhat similar to a center of mass computation, except that only two dimensions are considered.

Compute the ARP using the centerline end positions of all usable runways based on the ultimate configuration of the airport. However, since runways without specially prepared hard surfaces (SPHSs) typically are not surveyed, the ARP position for these airports will be approximate. Indicate the ARP computation with the year of the most recent runway end survey used in the ARP computation, such as "ARP (1995)". The following section identifies how to compute the ARP.

ARP Computation Methodology

The datums used in the computations are normally selected as the lowest absolute value latitude and longitude coordinates, respectively, of all runway ends used in the computation. This convention eliminates computing with negative moments.

ARP LAT = Latitude Datum + (Sum of Runway Moments about the Latitude Datum/Sum of Runway Lengths)

ARP LON = Longitude Datum + (Sum of Runway Moments about the Longitude Datum/Sum of Runway Lengths)

Runway Moment about the Latitude Datum = Runway Ground Length × the Distance in Seconds between the approximate Runway Center Point* and the Latitude Datum

Runway Moment about the Longitude Datum = Runway Ground Length × the Distance in Seconds between the approximate Runway Center Point* and the Longitude Datum

Runway Coordinates must be entered as absolute values.

Runway Lengths must be entered as Ground Length, rounded to the nearest whole foot.

* The approximate Runway Center Point is the mean of the Latitudes and Longitudes of a Runway's Ends. This convention eliminates the need for complex geodetic formulas to compute the precise Runway Center Point, thus allowing simple and consistent ARP computations after only brief instructions.

A Sample ARP Computation follows (See Figure B.1):

Approximate Runway Center Pts:

RWY 1/19

LAT = 39 24 57.7852

LON = 77 22 41.1951

RWY 5/23

LAT = 39 24 48.4806

LON = 77 22 34.9130

ARP LAT = 39 24 34.1979 + (4,000 FT (23.5873 SEC) + 3,799 FT (14.2827 SEC))/7,799 FT

= 39 24 34.1979 + 19.0549 SEC

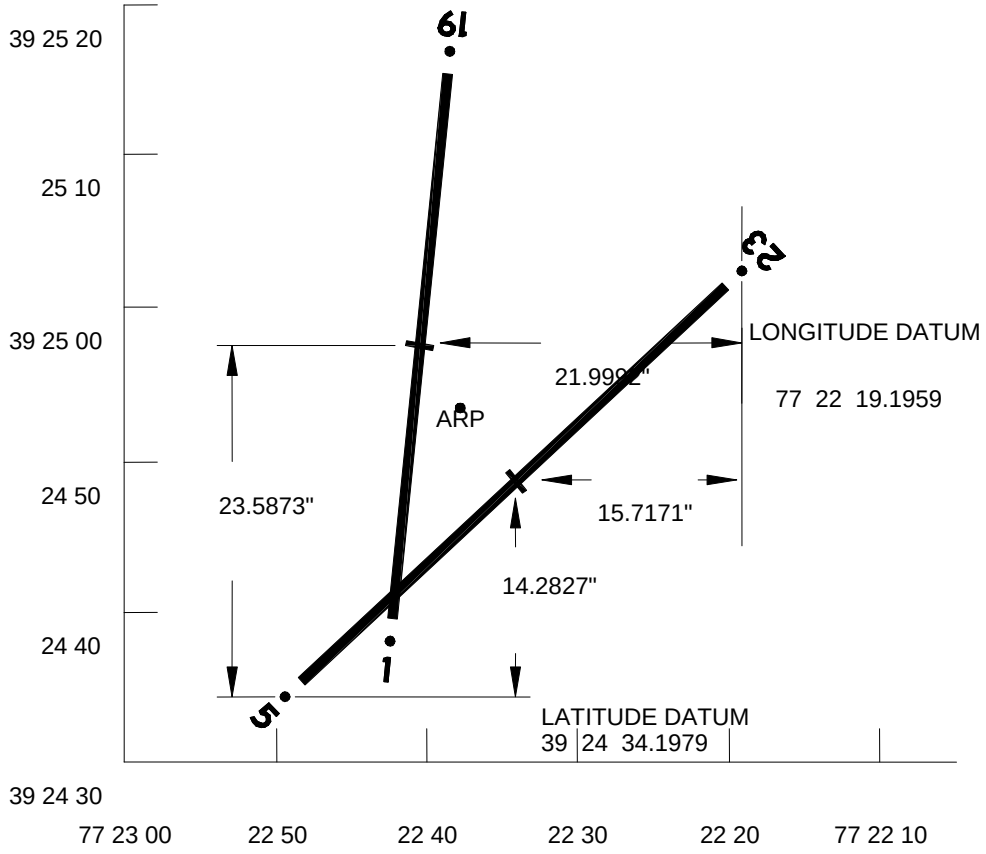
= 39 24 53.3

ARP LON = 77 22 19.1959 + (4,000 FT (21.9992 SEC) + 3,799 FT (15.7171 SEC))/7,799 FT

= 77 22 19.1959 + 18.9391 SEC

= 77 22 38.1

Figure B-1. AIRPORT REFERENCE POINT (ARP) COMPUTATION



RUNWAY END	LATITUDE	LONGITUDE	GROUND LENGTH*
1	39 24 38.0871	077 22 43.3322	4,000 FT
19	39 25 17.4832	077 22 39.0579	
5	39 24 34.1979	077 22 50.6301	3,799 FT
23	39 25 02.7632	077 22 19.1959	

*USE GROUND, NOT GEODETIC, RUNWAY LENGTH ROUNDED TO THE NEAREST WHOLE FOOT.

NOTES:

1. DO NOT SCALE DRAWING.
2. THIS FIGURE EXPLAINS OR CLARIFIES CERTIAN DATA REQUIREMENTS - SEE TEXT FOR COMPLETE STANDARDS.

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APPENDIX C. RUNWAY, STOPWAY, and DISPLACED THRESHOLD END IDENTIFCATION and MONUMENTATION

C.1. RUNWAY, STOPWAY, and DISPLACED THRESHOLD END IDENTIFCATION and MONUMENTATION

C.1.1. Terminology

C.1.1.1. The precise meaning of terms is always important for a clear understanding of spoken or written information. This understanding is especially critical in technical areas where safety is involved. It is important the surveyor become familiar with runway/stopway terminology and clearly understands the definitions. Certain terms and expressions used in this document have specific meanings that must not be misconstrued or applied incorrectly. Refer to the Glossary for definitions used in this document. Many of these definitions are from the "Aeronautical Information Manual" or other FAA ACs, both document types published by the FAA. Other definitions are from the "Geodetic Glossary" published by the National Geodetic Survey. When adequate definitions were not available from an official source, they were carefully developed as needed for this document.

C.1.1.2. Throughout this document, reference is made to the "approach side" or "touchdown side" of a feature. For example, "Threshold lights show green from the approach side." Correct understanding of these terms is extremely important. The "approach side" of a feature is the side occupied by a landing aircraft before the aircraft has passed the feature. The "touchdown side" of a feature is the side occupied by a landing aircraft after the aircraft has passed the feature. These terms are always referenced to a landing aircraft and the approach end (not the stop end) of the runway.

C.1.2. Features Associated With Runway/Stopway Usage and Survey Point Location

C.1.2.1. General Information. One or more of the features existing on the airport usually indicate the runway/stopway usage or intended usage. These features include surface markings, lights, signs, navigational aids, and physical construction.

C.1.2.2. Survey Point, and Supporting Features. The runway/stopway survey point is the intersection of the runway/stopway centerline and a feature precisely defining the survey point, such as the approach side of a threshold bar. The feature precisely defining the survey point is called the survey point locator. A survey point locator may be tangible, such as the approach side of a threshold bar, or intangible, such as an imaginary line constructed relative to a tangible feature or features like outboard (refer to Glossary) runway end lights.

C.1.2.2.1 A supporting feature is a feature associated with a runway/stopway survey point but does not precisely define the point. A typical supporting feature is the threshold lights located near a displaced threshold. There may be several supporting features for each survey point. Supporting features provide confidence the survey point was correctly selected. The most useful supporting features are usually one or more of the following:

- Threshold bar and other threshold paintings
- Runway number
- Threshold and runway end lights

- Runway edge lights

Less useful features include:

- Signs
- Visual Glideslope Indicators
- Electronic Navigational Aids
- Taxiways

C.1.2.2.2 Some features are either a survey point locator or a supporting feature, depending on the situation. For example, when a threshold bar is located at a displaced threshold, the approach side of the bar defines the threshold. However, when a threshold bar is located near the end of pavement, the end of pavement usually defines the threshold and the bar is only a supporting feature providing confidence the threshold is located at the end and not at some other location on the runway. Specific features that either define a survey point or are useful in supporting survey point selection are discussed in this section. Because of the many nonstandard situations and configurations encountered in the field, selecting the correct survey point is somewhat complex. When considering the features discussed below and their applicability to survey point location, it may be useful to refer to the associated figures in this section, as well as appropriate FAA ACs.

C.1.2.3. Limit of Construction. The limit of construction is usually the survey point locator for the ends of concrete runways when there is no aligned taxiway. There is an operational benefit to the airport sponsor and aircraft operators to have the maximum runway/stopway length possible. The limit of construction, or the runway end trim line, usually provides this maximum. The limit of construction is typically indicated by a surface discontinuity. Be careful not to locate the runway end beyond this discontinuity and on a blast pad, stopway, or other non-runway surface.

C.1.2.4. Trim Line. A trim line is an imaginary line constructed perpendicular to the runway/stopway centerline establishing the location of a runway/stopway end or displaced threshold. A trim line is most frequently used to "square off" the ends of an apparent runway/stopway surface (refer to Glossary) establishing the runway/stopway ends. Most apparent runway/stopway surfaces are not concrete and their ends are not perpendicular to the runway/stopway centerline, are breaking up, or are otherwise unsuitable as a runway/stopway. Occasionally, the apparent runway/stopway surface may also narrow toward its end. This narrowing is most likely to occur on shorter runways at smaller airports. In all of these cases, a trim line must be constructed perpendicular to the runway/stopway centerline at the first good pavement. This trim line may be only a few inches or may be many feet from the apparent runway/stopway surface end. In practice, the surveyor is not qualified to accurately determine the load bearing integrity of a surface. As a practical matter, establish the trim line at a point on the apparent runway/stopway surface inside any disintegrating or otherwise questionable surface appearing to be below the full load bearing capacity of the runway/stopway.

C.1.2.4.1 <u>Other Uses Of The Trim Line Include:</u>

- Establishing a runway end at outboard runway end lights when an aligned taxiway exists and there is no threshold bar, or the approach side of the bar is located on the approach side of the runway end lights.

- Establishing a runway end at a location determined by operational requirements, such as defining a runway end short of a second runway when abutting surfaces exist.

- Defining a displaced threshold when there is no threshold bar, this may be the case with unpaved runways with outboard threshold lights.

C.1.2.5. Surface Markings

C.1.2.5.1 Threshold Bar. A threshold bar delineates the beginning of the runway available for landing (threshold) when there is pavement aligned with the runway on the approach side of the threshold. This pavement may be runway, taxiway, stopway, or a non-usable surface such as a blast pad. Threshold bars precisely delineate displaced thresholds, but in many cases do not precisely delineate runway ends even when a bar is located near the runway end. When a threshold bar does define a threshold or runway end, the approach side of the bar is the survey point locator (with the bar being entirely on the landing surface). Threshold bars define runway ends on paved runways with an aligned taxiway and no displaced threshold, provided the approach side of the bar is aligned with or is on the touchdown side of the runway end lights. In no other case does the threshold bar precisely define the runway end. The threshold bar is only a supporting feature for runway ends with no aligned taxiway since these bars are often not painted precisely at the runway end as defined by the limit of construction or a trim line. A threshold bar painted "close" to the end may be satisfactory for the painting contractor but is not sufficient for precisely defining a runway end. Occasionally, a threshold bar may even be painted on a blast pad or other non-runway surface. Because of the variability and unreliability of threshold bar locations at runway ends with no aligned taxiway, do not use the threshold bar to define the runway end survey point in these situations. It is important to remember the correct painting on runways is white, while correct painting on taxiways, stopways, or blast pads is yellow. If a displaced threshold exists on a runway with an aligned taxiway, the runway end may be marked with a yellow demarcation bar. If painted correctly, this demarcation bar is not on the runway surface.

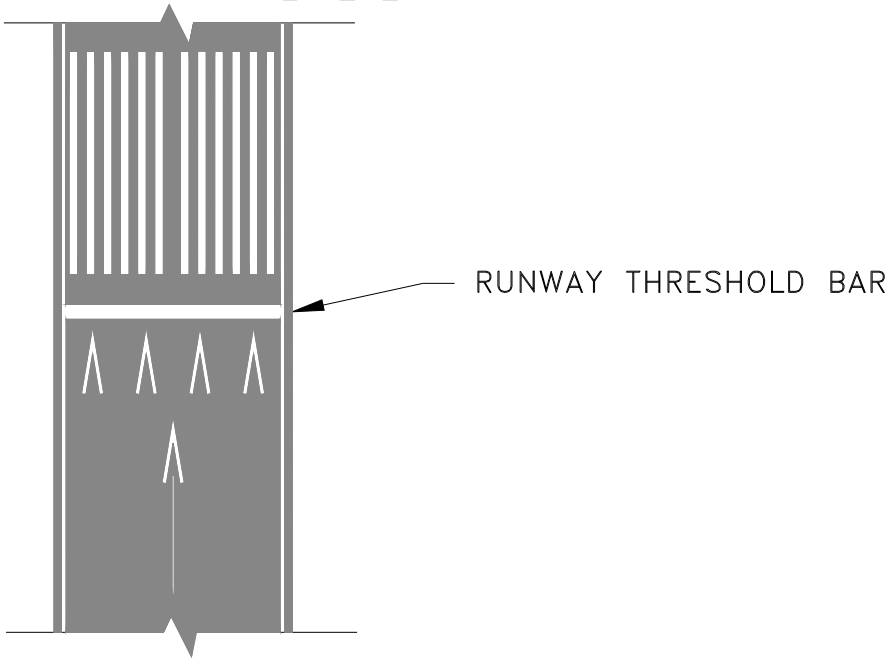

Figure C-1. Depicts the proper marking of a threshold bar.

C.1.2.6. Runway Numbers. The runway number is a supporting feature. Runway numbers are especially useful and reliable as supporting features since most paved runways, even if unlighted, are painted with runway numbers near the threshold. If a runway number is painted on the runway at a location other than near the apparent threshold, a serious conflict exists requiring resolution. Discuss this matter immediately with airport management.

C.1.2.7. Other Surface Markings. Other surface markings are supporting features. Many surface markings, such as threshold markings (specific markings other than the threshold bar), runway side stripes, displaced threshold arrows and arrowheads, the lines and arrowheads on taxiways aligned with runways, and the chevrons on stopways and blast pads are associated with runway/stopway ends and thresholds. While none of these markings precisely define runway/stopway survey points, many can be useful as supporting features providing confidence in survey point selection.

C.1.2.8. Lights. Exercise extreme caution when using lights for runway/stopway survey point identification. Be sure to verify the lights are not out-of-service. Be especially vigilant for redundant lights or lights appearing out-of-place. Occasionally, a threshold or runway end may be moved and the original lights placed out-of-service but not physically removed. If this situation is not recognized, it could lead to confusion and incorrect survey point location.

C.1.2.8.1 Threshold Lights. Threshold lights are fixed green lights arranged symmetrically left and right of the runway centerline and identify the approximate runway threshold (but not necessarily the runway end). These lights are frequently in multipurpose fixtures showing green from the approach side of the threshold and may show red, white, or amber, or may be obscured from the touchdown side of the threshold, depending on additional function. Threshold lights are usually supporting features for survey points on paved runways. However, they may define the survey point for displaced thresholds when a threshold bar is missing, such as may occur on unpaved runways. (Displaced thresholds on unpaved runways are uncommon). Light characteristics can be useful in distinguishing between a displaced threshold and a runway end with an aligned taxiway. The displaced threshold will include lights showing green from the approach side and white, amber, or obscured from the touchdown side. The runway end with an aligned taxiway will include lights showing green from the approach side and red from the touchdown side. When threshold lights are located at the runway end, they typically are combined with runway end lights into one fixture. In these cases, threshold lights show green from the approach side, while the runway end lights show red from the touchdown side. Special lens or filters are used to give the desired coverage. In the rare case where the light units define a trim line for a displaced threshold survey point (no threshold bar), the two units nearest to the runway (one on each side of the runway) are used. The trim line must always be perpendicular to the runway centerline. If the trim line connecting the lights (or markers if runway is unlighted) is not perpendicular to the runway centerline, then the line must be best fit to the defining lights or markers. When there is no displaced threshold or runway end with an aligned taxiway, threshold and runway end lights are normally located across the runway end and about 10 feet on the approach side of the runway. When there is a displaced threshold or a runway end with an aligned taxiway, these lights are normally located to the side of the runway but are often offset along the runway by 10 feet or more from the true threshold or runway end.

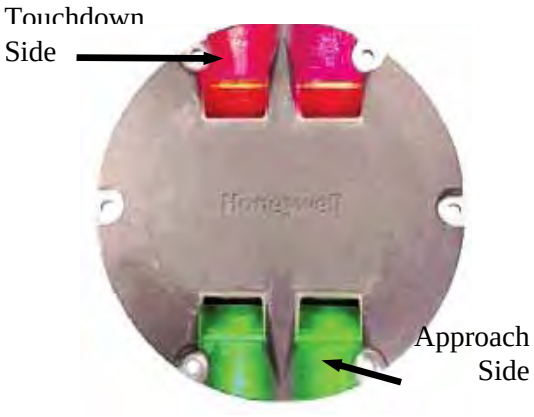

Figure C-2. Overhead view of a threshold light, which are typically flush mounted with the runway surface.

C.1.2.8.2 Runway End Lights. Runway end lights are fixed red lights arranged symmetrically left and right of the runway centerline and identify the approximate runway end, or in some cases, the precise runway end. They show red from the runway side and may also show red from the approach side, if the runway end is not the threshold. If the runway end is also a threshold, the light unit will show green from the approach side. FAA guidelines or regulations do not authorize a runway to extend to the approach side of the runway end lights. Therefore, the runway end cannot be on the approach side of the runway end lights regardless of threshold bar or runway end light location. Do not confuse these situations with that of threshold lights at a displaced threshold where the approach side of the threshold bar defines the threshold and the lights are only supporting features. In most cases where there is no aligned taxiway, limit of construction, or a trim line, the touchdown side of the lights defines the runway end and the runway end lights are supporting features only. In some cases, however, runway end lights can define a runway end survey point. For runways with an aligned taxiway, runway end lights (which can be situated either outboard or flush mounted inboard) define the runway end survey point if there is no threshold bar or if the approach side of the threshold bar is on the approach side of the lights. (If the bar is entirely on the touchdown side of the lights, the approach side of the bar defines the runway end survey point.) In the rare cases where there is no aligned taxiway but the runway end lights are outboard and on the touchdown side of an apparent runway end, the lights define the runway end. The surface on the approach side of the lights is not runway.

Figure C-3. Typical elevated runway or taxiway edge light with the blue taxiway lens installed.

C.1.2.8.3 Runway/Stopway Edge Lights. Runway edge lights are white, except on instrument runways, where amber replaces white in the last 2,000 feet or half the runway length, whichever is less, to form a caution zone for landing. Runway/stopway edge lights are supporting features and do not precisely define survey points. However, in some cases their color characteristics may identify a section of pavement as either runway or taxiway. The edge lights for taxiways are blue, while the edge lights for

runways are white or amber. Stopway lighting is inconsistent and unreliable in stopway survey point identification.

C.1.2.8.4 Runway End Identifier Lights. Runway End Identifier Lights (REIL) consist of a pair of synchronized flashing lights located laterally on each side of the runway threshold but are typically not aligned precisely with the threshold. They may be omnidirectional or unidirectional facing the approach area. REILs are supporting features and do not precisely identify survey points. REILs may be useful in determining runway usage since they are located near the threshold.

Figure C-4. Typical installation of the runway end identification light (REIL) with the horizontal and VSPs identified.

C.1.2.8.5 Signs. Signs are supporting features and do not precisely identify survey points. Occasionally, signs may be useful in indicating a runway end, especially a runway end with an aligned taxiway. They can also indicate the direction to a runway end.

C.1.2.8.6 Visual Glideslope Indicators. Visual glideslope indicators are light sources which project directional light into the approach area providing pilots with visual vertical guidance in the final approach phases of flight. The locations and characteristics of visual glideslope indicators vary depending on type. However, all are located beside the runway on the touchdown side of the threshold. Visual glideslope indicators are supporting features and do not precisely define survey points. Occasionally, these indicators may be useful in determining runway usage since they indicate the approximate touchdown area for landing aircraft.

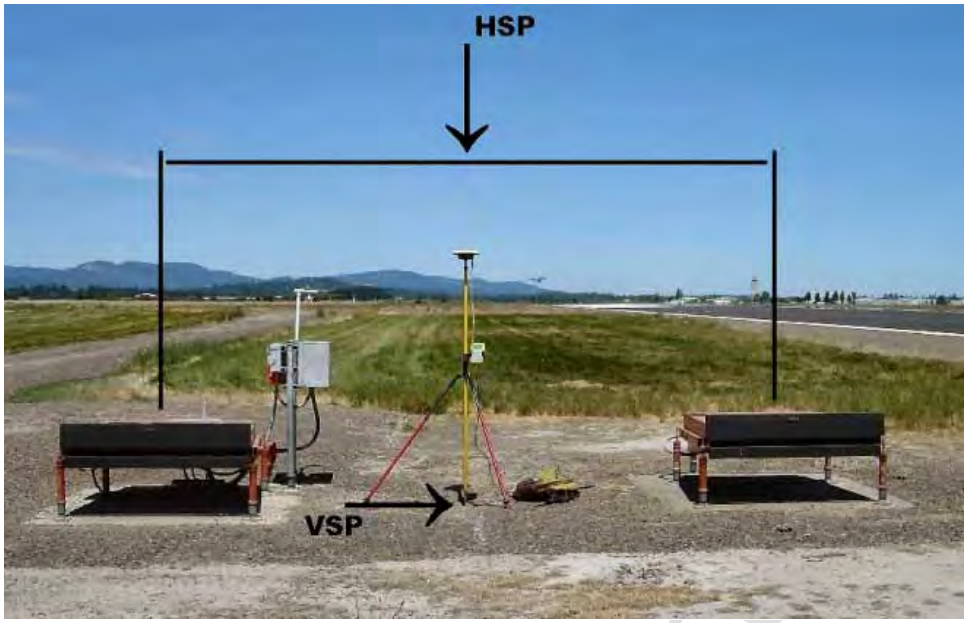

Figure C-5. Illustrates the proper location of a GPS setup to locate the HSP of a Precision Approach Path Indicator (PAPI) light system. THE PAPI is one type of VGSI.

C.1.2.8.7 Electronic Navigational Aids. The Instrument Landing System Glideslope (ILS-GS) antenna is the emission source for electronic signals, providing pilots with electronic vertical guidance in the final approach phases of flight. ILS-GS antennas are typically located at least 400 feet off the runway centerline and approximately 1,000 feet on the touchdown side of the threshold. Electronic navigational aids, including the ILS-GS, do not precisely identify survey points. Occasionally, the ILS-GS antenna may be useful in determining runway usage since most ILS-GS antennas are sited near the touchdown area for landing aircraft.

Figure C-6. Typical glideslope installation.

C.1.2.8.8 Taxiways. Taxiways are movement areas providing access to runways from aircraft parking, maintenance, and other areas on the airport. Taxiways do not precisely identify survey points. However, since runway ends are usually accessed by adjacent taxiways, the location of a taxiway may suggest the proximity of a runway end. While many runway ends coincide with the extension of the taxiway edge onto the runway, this is not always the case. Often a runway extends slightly beyond the taxiway edge, making the survey point locator for the runway end the limit of physical construction, a trim line, or a threshold bar and not the taxiway extension onto the runway. It is not uncommon to have a runway end without direct taxiway access. One common case occurs when a runway is extended, but the taxiway was not extended to the new runway end. This situation is most likely to occur at smaller airports. While taxiway/runway intersections do not define runway points, unusual taxiway/runway configurations can alert the surveyor an unusual situation may exist.

APPENDIX D. TRUNCATED ATTRIBUTE VALUES TO BE USED WITH ESRI® SHAPEFILES

NOTE: *When submitting data as ESRI® shapefiles (geodatabase is not acceptable), the truncated attribute values in the following list must be used. This list includes truncated values for all features identified in Chapter 5 of this AC.*

FeatureClass	AttributeName	Shp_Name	New Shp_Name
AircraftGateStand	description	feat_desc	desc
AircraftGateStand	gateStandType	gate_sta	gateStType
AircraftGateStand	identifier	identifier	
AircraftGateStand	length	length	
AircraftGateStand	name	name	
AircraftGateStand	pavementClassificationNumber	pavementCl	
AircraftGateStand	status	status	
AircraftGateStand	userFlag	userFlag	
AircraftGateStand	width	width	
AircraftGateStand	wingspan	wingspan	
AircraftNonMovementArea	description	feat_desc	desc
AircraftNonMovementArea	identifier	identifier	
AircraftNonMovementArea	name	name	
AircraftNonMovementArea	userFlag	userFlag	
AirfieldLight	color	color	
AirfieldLight	description	feat_desc	desc
AirfieldLight	identifier	identifier	
AirfieldLight	lightingType	lighting	
AirfieldLight	luminescence	luminesc	
AirfieldLight	name	name	
AirfieldLight	pilotControlFrequency	pilotContr	
AirfieldLight	userFlag	userFlag	
AirfieldLinearSafetyLine	description	feat_desc	desc
AirfieldLinearSafetyLine	facilityType	fac_typ	facType
AirfieldLinearSafetyLine	identifier	identifier	
AirfieldLinearSafetyLine	name	name	
AirfieldLinearSafetyLine	userFlag	userFlag	
AirfieldLinearSafetyLine	status	status	
AirOperationsArea	description	feat_desc	desc
AirOperationsArea	identifier	identifier	
AirOperationsArea	name	name	
AirOperationsArea	userFlag	userFlag	
AirportBoundary	airportFacilityType	airportF	airportFac
AirportBoundary	description	feat_desc	desc
AirportBoundary	faaLocationId	faaLocID	
AirportBoundary	faaSiteNumber	faaSiteNr	
AirportBoundary	iataCode	iataCode	
AirportBoundary	icaoCode	icaoCode	
AirportBoundary	identifier	identifier	
AirportBoundary	name	name	
AirportBoundary	operationsType	operatio	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
AirportBoundary	owner	owner	
AirportBoundary	userFlag	userFlag	
AirportControlPoint	coordinateZone	spcszone	
AirportControlPoint	dateRecovered	date_recov	dateRecov
AirportControlPoint	description	mon_desc	desc
AirportControlPoint	ellipsoidElev	ellipsoidE	
AirportControlPoint	epoch	epoch	
AirportControlPoint	fieldBook	fieldBook	
AirportControlPoint	globalPositionSystemSuitable	gps_suit	gpsSuit
AirportControlPoint	identifier	identifier	
AirportControlPoint	latitude	latitude	
AirportControlPoint	longitude	longitude	
AirportControlPoint	monumentType	mon_typ	monType
AirportControlPoint	name	name	
AirportControlPoint	orthometricElevation	elevation	
AirportControlPoint	permanentId	permanentI	
AirportControlPoint	pointType	pointType	
AirportControlPoint	recoveredCondition	recov_cond	recovCond
AirportControlPoint	stampedDesignation	stmpd_desg	stmpdDesg
AirportControlPoint	userFlag	userFlag	
AirportControlPoint	yearOfSurvey	yearOfSurv	
AirportParcel	acquisitionType	acquisitio	
AirportParcel	authority	authority	
AirportParcel	costToAcquire	costToAcqu	
AirportParcel	dateAcquired	dateAcquir	
AirportParcel	description	feat_desc	desc
AirportParcel	grantProjectNumber	grantProje	
AirportParcel	howAcquired	howAcquire	
AirportParcel	identifier	identifier	
AirportParcel	marketValue	marketValu	
AirportParcel	name	name	
AirportParcel	userFlag	userFlag	
AirportParcel	yearAssessed	yearAssess	
AirportParcel	yearBuilt	yearBuilt	
AirportSign	description	feat_desc	desc
AirportSign	height	height	
AirportSign	identifier	identifier	
AirportSign	message	message	
AirportSign	name	name	
AirportSign	signTypeCode	signType	
AirportSign	userFlag	userFlag	
Apron	apronType	apronType	
Apron	description	feat_desc	desc
Apron	identifier	identifier	
Apron	name	name	
Apron	pavementClassificationNumber	pavementCl	
Apron	status	status	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
Apron	surfaceCondition	surfaceC	
Apron	surfaceMaterial	surfaceM	
Apron	surfaceType	surfaceT	
Apron	tiedowns	tiedowns	
Apron	userFlag	userFlag	
Bridge	bridgeType	bridgeType	
Bridge	color	color	
Bridge	description	feat_desc	desc
Bridge	height	height	
Bridge	identifier	identifier	
Bridge	length	length	
Bridge	lightingType	lighting	
Bridge	markingFeatureType	markingF	
Bridge	name	name	
Bridge	userFlag	userFlag	
Bridge	verticalClearance	vert_clr	vertClr
Building	areaFloor	areaFloor	
Building	areaInside	areaInside	
Building	buildingNumber	buildng_no	buildingNo
Building	color	color	
Building	description	feat_desc	desc
Building	identifier	identifier	
Building	lightingType	lighting	
Building	markingFeatureType	markingF	
Building	name	name	
Building	numberCurrentOccupants	no_occup	noCurOcc
Building	structureHeight	structHght	
Building	structureStatus	str_stat	strStat
Building	structureType	str_type	strType
Building	userFlag	userFlag	
ConstructionArea	CoordinationContact	Coordinati	
ConstructionArea	description	feat_desc	desc
ConstructionArea	identifier	identifier	
ConstructionArea	name	name	
ConstructionArea	projectName	projectNam	
ConstructionArea	projectStatus	projectS	
ConstructionArea	userFlag	userFlag	
CoordinateGridArea	description	feat_desc	desc
CoordinateGridArea	identifier	identifier	
CoordinateGridArea	name	name	
CoordinateGridArea	userFlag	userFlag	
County	description	feat_desc	desc
County	identifier	identifier	
County	name	name	
County	politicalName	polit_name	politName
County	userFlag	userFlag	
DeicingArea	description	area_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
DeicingArea	identifier	identifier	
DeicingArea	name	name	
DeicingArea	userFlag	userFlag	
DisplacedThreshold	description	feat_desc	desc
DisplacedThreshold	ellipsoidElevation	ellipsoidE	
DisplacedThreshold	identifier	identifier	
DisplacedThreshold	latitude	latitude	
DisplacedThreshold	longitude	longitude	
DisplacedThreshold	name	name	
DisplacedThreshold	orthoElevation	elevation	
DisplacedThreshold	pointType	pointType	
DisplacedThreshold	userFlag	userFlag	
DrivewayArea	description	feat_desc	desc
DrivewayArea	identifier	identifier	
DrivewayArea	name	name	
DrivewayArea	surfaceMaterial	surfaceM	
DrivewayArea	userFlag	userFlag	
DrivewayCenterline	description	feat_desc	desc
DrivewayCenterline	identifier	identifier	
DrivewayCenterline	name	name	
DrivewayCenterline	userFlag	userFlag	
EasementsAndRightOfWays	description	feat_desc	desc
EasementsAndRightOfWays	identifier	identifier	
EasementsAndRightOfWays	name	name	
EasementsAndRightOfWays	purpose	purpose	
EasementsAndRightOfWays	status	status	
EasementsAndRightOfWays	userFlag	userFlag	
ElevationContour	description	feat_desc	desc
ElevationContour	identifier	identifier	
ElevationContour	length	length	
ElevationContour	name	name	
ElevationContour	orthometricElevation	elevation	
ElevationContour	userFlag	userFlag	
EnvironmentalContaminationArea	cause	cause	
EnvironmentalContaminationArea	dateFound	dateFound	
EnvironmentalContaminationArea	description	feat_desc	desc
EnvironmentalContaminationArea	environmentalHazardCategory	ehazcat	
EnvironmentalContaminationArea	identifier	identifier	
EnvironmentalContaminationArea	name	name	
EnvironmentalContaminationArea	pollutantReleaseType	rel_typ	polReType
EnvironmentalContaminationArea	pollutionSource	pol_src	polSource
EnvironmentalContaminationArea	remediationUrgency	rem_urg	remUrgncy
EnvironmentalContaminationArea	severity	severity	
EnvironmentalContaminationArea	status	status	
EnvironmentalContaminationArea	toxicStatusOfPollutant	tox_stt	toxStatPol
EnvironmentalContaminationArea	userFlag	userFlag	
FAARegionArea	description	reg_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
FAARegionArea	identifier	identifier	
FAARegionArea	name	name	
FAARegionArea	userFlag	userFlag	
FaunaHazardArea	description	feat_desc	desc
FaunaHazardArea	hazardType	hazardType	
FaunaHazardArea	identifier	identifier	
FaunaHazardArea	name	name	
FaunaHazardArea	userFlag	userFlag	
Fence	description	feat_desc	desc
Fence	fenceType	fenceType	
Fence	height	height	
Fence	identifier	identifier	
Fence	name	name	
Fence	userFlag	userFlag	
FinalApproachTakeOff	description	feat_desc	desc
FinalApproachTakeOff	identifier	identifier	
FinalApproachTakeOff	name	name	
FinalApproachTakeOff	userFlag	userFlag	
FloatingDockSite	description	feat_desc	desc
FloatingDockSite	identifier	identifier	
FloatingDockSite	name	name	
FloatingDockSite	userFlag	userFlag	
FloodZone	description	feat_desc	desc
FloodZone	identifier	identifier	
FloodZone	name	name	
FloodZone	userFlag	userFlag	
FloodZone	zoneType	zoneType	
FloraSpeciesSite	description	feat_desc	desc
FloraSpeciesSite	endangeredSpeciesActSite	hab_stt	habStt
FloraSpeciesSite	identifier	identifier	
FloraSpeciesSite	name	name	
FloraSpeciesSite	plantHeight	plant_ht	plantHt
FloraSpeciesSite	plantType	plantType	
FloraSpeciesSite	userFlag	userFlag	
ForestStandArea	description	feat_desc	desc
ForestStandArea	habitatCategory	habcat	
ForestStandArea	identifier	identifier	
ForestStandArea	name	name	
ForestStandArea	userFlag	userFlag	
FrequencyArea	description	feat_desc	desc
FrequencyArea	frequency	frequency	
FrequencyArea	identifier	identifier	
FrequencyArea	name	name	
FrequencyArea	station	station	
FrequencyArea	userFlag	userFlag	
Gate	attended	attended	
Gate	description	feat_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
Gate	gateType	gateType	
Gate	height	height	
Gate	identifier	identifier	
Gate	length	length	
Gate	name	name	
Gate	userFlag	userFlag	
HazMatStorageSite	description	feat_desc	desc
HazMatStorageSite	identifier	identifier	
HazMatStorageSite	name	name	
HazMatStorageSite	storeHazardousMaterialCategory	hsb_cat	hsbCat
HazMatStorageSite	userFlag	userFlag	
HelipadThreshold	description	thresholdD	desc
HelipadThreshold	identifier	identifier	
HelipadThreshold	latitude	latitude	
HelipadThreshold	longitude	longitude	
HelipadThreshold	name	name	
HelipadThreshold	userFlag	userFlag	
ImageArea	description	feat_desc	desc
ImageArea	frameNumber	frame_no	
ImageArea	identifier	identifier	
ImageArea	name	name	
ImageArea	photoDate	photoDate	
ImageArea	userFlag	userFlag	
LandmarkSegment	description	feat_desc	desc
LandmarkSegment	identifier	identifier	
LandmarkSegment	landmarkType	landmark	
LandmarkSegment	name	name	
LandmarkSegment	userFlag	userFlag	
LandUse	description	use_desc	desc
LandUse	identifier	identifier	
LandUse	name	name	
LandUse	userFlag	userFlag	
LandUse	useType	useType	
LeaseZone	actualArea	actualArea	
LeaseZone	description	feat_desc	desc
LeaseZone	expectedLeaseExpirationDate	date_lsexp	
LeaseZone	identifier	identifier	
LeaseZone	leasedArea	leasedArea	
LeaseZone	legalDescription	legl_desc	
LeaseZone	name	name	
LeaseZone	permitUse	permitUse	
LeaseZone	status	status	
LeaseZone	tenantName	tenantName	
LeaseZone	userFlag	userFlag	
Municipality	description	feat_desc	desc
Municipality	identifier	identifier	
Municipality	name	name	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
Municipality	userFlag	userFlag	
NavaidEquipment	antennaToThresholdDistance	antToThres	
NavaidEquipment	centerlineDistance	centerline	centlnDist
NavaidEquipment	description	feat_desc	desc
NavaidEquipment	downWindBarElevation	downWindBa	
NavaidEquipment	downWindBarThreshold	dWndBarThr	
NavaidEquipment	ellipsoidElev	ellipsoidE	
NavaidEquipment	faaLocationId	faaLocID	
NavaidEquipment	highAngle	highAngle	
NavaidEquipment	identifier	identifier	
NavaidEquipment	latitude	latitude	
NavaidEquipment	lightingConfigurationType	lightConfT	
NavaidEquipment	longitude	longitude	
NavaidEquipment	name	name	
NavaidEquipment	navigationalAidEquipmentTypeCode	navaidEq	
NavaidEquipment	offsetDistance	offsetDist	
NavaidEquipment	orthometricElevation	elevation	
NavaidEquipment	owner	owner	
NavaidEquipment	referenceEllipsoidHeight	refEllipso	
NavaidEquipment	referencePointThreshold	refPointTh	
NavaidEquipment	runwayEndId	rwyEndID	
NavaidEquipment	status	status	
NavaidEquipment	thresholdCrossingHeight	thresholdC	
NavaidEquipment	useCode	useCode	
NavaidEquipment	userFlag	userFlag	
NavaidCriticalArea	bufferDistance	buffr_dist	buffrDist
NavaidCriticalArea	description	feat_desc	desc
NavaidCriticalArea	identifier	identifier	
NavaidCriticalArea	name	name	
NavaidCriticalArea	userFlag	userFlag	
NavaidSite	description	facil_desc	desc
NavaidSite	facilityLocationId	facLocID	
NavaidSite	facilityType	fac_typ	facType
NavaidSite	identifier	identifier	
NavaidSite	name	name	
NavaidSite	propertyCustodian	propertyCu	
NavaidSite	userFlag	userFlag	
NavaidSystem	description	feat_desc	desc
NavaidSystem	faaLocationId	faaLocID	
NavaidSystem	identifier	identifier	
NavaidSystem	latitude	latitude	
NavaidSystem	length	length	
NavaidSystem	longitude	longitude	
NavaidSystem	name	name	
NavaidSystem	navigationalAidSystemTypeCode	navaidSy	
NavaidSystem	userFlag	userFlag	
NavigationBuoy	buoyNumber	bouyNumber	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
NavigationBuoy	buoyType	buoyType	
NavigationBuoy	color	color	
NavigationBuoy	description	feat_desc	desc
NavigationBuoy	identifier	identifier	
NavigationBuoy	name	name	
NavigationBuoy	userFlag	userFlag	
NoiseContour	contourValue	contourVal	
NoiseContour	description	feat_desc	desc
NoiseContour	identifier	identifier	
NoiseContour	name	name	
NoiseContour	userFlag	userFlag	
NoiseIncident	description	incid_desc	desc
NoiseIncident	identifier	identifier	
NoiseIncident	latitude	latitude	
NoiseIncident	longitude	longitude	
NoiseIncident	name	name	
NoiseIncident	reporter	reporter	
NoiseIncident	userFlag	userFlag	
NoiseMonitoringPoint	description	feat_desc	desc
NoiseMonitoringPoint	identifier	identifier	
NoiseMonitoringPoint	latitude	latitude	
NoiseMonitoringPoint	longitude	longitude	
NoiseMonitoringPoint	name	name	
NoiseMonitoringPoint	status	status	
NoiseMonitoringPoint	userFlag	userFlag	
Obstacle	aboveGroundLevel	aboveGroun	
Obstacle	description	feat_desc	desc
Obstacle	distanceFromDisplacedThresholdToObstacle	FromDTHLDD	
Obstacle	distanceFromRunwayCenterlineToObstacle	FromRwyCen	
Obstacle	distanceFromRunwayEndToObstacle	FromRwyEnd	
Obstacle	ellipsoidElevation	ellipsoidE	
Obstacle	groupCode	groupCode	
Obstacle	heightAboveAirport	heightAbov	
Obstacle	heightAboveRunway	hAbovRwy	
Obstacle	heightAboveTouchdownZone	hAbovTdz	
Obstacle	identifier	identifier	
Obstacle	latitude	latitude	
Obstacle	lightCode	lightCode	
Obstacle	longitude	longitude	
Obstacle	markingFeatureType	markingF	
Obstacle	name	name	
Obstacle	obstacleType	obstacle	
Obstacle	penValSpecified	penVal_Spe	penValSpe
Obstacle	penValSupplemental	penVal_Sup	penValSup
Obstacle	userFlag	userFlag	
ObstructionArea	description	feat_desc	desc
ObstructionArea	disposition	dispostn	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
ObstructionArea	faaCoordinationCode	faa_d	faaCode
ObstructionArea	frangible	frangible	
ObstructionArea	height	height	
ObstructionArea	identifier	identifier	
ObstructionArea	length	length	
ObstructionArea	name	name	
ObstructionArea	narrative	narrative	
ObstructionArea	obstructionAreaType	obs_typ	obsArType
ObstructionArea	obstructionNumber	obs_number	obsNumber
ObstructionArea	oisSurfaceCondition	oisSurfa	
ObstructionArea	userFlag	userFlag	
ObstructionArea	width	width	
ObstructionIdSurface	approachType	appTyp	
ObstructionIdSurface	description	feat_desc	desc
ObstructionIdSurface	identifier	identifier	
ObstructionIdSurface	name	name	
ObstructionIdSurface	obstructionIdentificationSurfaceCondition	oisSurfa	
ObstructionIdSurface	obstructionIdentificationSurfaceType	oisSurTy	
ObstructionIdSurface	obstructionIdentificationSurfaceZoneType	oisZoneT	
ObstructionIdSurface	safetyRegulation	safety_reg	safetyReg
ObstructionIdSurface	slope	slope	
ObstructionIdSurface	userFlag	userFlag	
ObstructionIdSurface	zoneUse	zoneUse	
Parcel	area	area	
Parcel	assessedValue	assd_value	assdValue
Parcel	dateAcquired	dateAcquir	
Parcel	deedReference	deed_ref	deedRef
Parcel	description	feat_desc	desc
Parcel	identifier	identifier	
Parcel	legalDescription	legl_desc	
Parcel	name	name	
Parcel	parcelNumber	parc_num	parcNum
Parcel	status	status	
Parcel	useOfParcel	use_parc	useParc
Parcel	userFlag	userFlag	
ParkingLot	description	feat_desc	desc
ParkingLot	identifier	identifier	
ParkingLot	name	name	
ParkingLot	numberHandicapSpaces	num_hndcp	noHndcpSp
ParkingLot	owner	owner	
ParkingLot	parkingLotUse	park_use	parcUse
ParkingLot	surfaceType	surfaceT	
ParkingLot	totalNumberSpaces	tot_spaces	totSpaces
ParkingLot	userFlag	userFlag	
PassengerLoadingBridge	description	feat_desc	desc
PassengerLoadingBridge	identifier	identifier	
PassengerLoadingBridge	name	name	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
PassengerLoadingBridge	userFlag	userFlag	
PavementSection	description	feat_desc	desc
PavementSection	identifier	identifier	
PavementSection	name	name	
PavementSection	pavementClassificationNumber	pavementCl	
PavementSection	userFlag	userFlag	
RailroadCenterline	bridge	bridge	
RailroadCenterline	description	feat_desc	desc
RailroadCenterline	identifier	identifier	
RailroadCenterline	name	name	
RailroadCenterline	numberOfTracks	numTracks	
RailroadCenterline	owner	owner	
RailroadCenterline	tunnel	tunnel	
RailroadCenterline	use	use	
RailroadCenterline	userFlag	userFlag	
RailroadYard	description	feat_desc	desc
RailroadYard	identifier	identifier	
RailroadYard	name	name	
RailroadYard	owner	owner	
RailroadYard	userFlag	userFlag	
RestrictedAccessBoundary	description	area_desc	desc
RestrictedAccessBoundary	identifier	identifier	
RestrictedAccessBoundary	name	name	
RestrictedAccessBoundary	userFlag	userFlag	
RoadCenterline	alternateName	alt_name	altName
RoadCenterline	bridge	bridge	
RoadCenterline	description	feat_desc	desc
RoadCenterline	identifier	identifier	
RoadCenterline	length	length	
RoadCenterline	name	name	
RoadCenterline	numberOfLanes	num_lanes	numLanes
RoadCenterline	route1Name	route1Name	
RoadCenterline	route1Type	route1Type	
RoadCenterline	route2Name	route2Name	
RoadCenterline	route2Type	route2Type	
RoadCenterline	route3Name	route3Name	
RoadCenterline	route3Type	route3Type	
RoadCenterline	tunnel	tunnel	
RoadCenterline	use	use	
RoadCenterline	userFlag	userFlag	
RoadPoint	description	feat_desc	desc
RoadPoint	identifier	identifier	
RoadPoint	name	name	
RoadPoint	userFlag	userFlag	
RoadSegment	alternateName	alt_name	altName
RoadSegment	bridge	bridge	
RoadSegment	identifier	identifier	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
RoadSegment	length	length	
RoadSegment	name	name	
RoadSegment	numberOfLanes	num_lanes	numLanes
RoadSegment	route1Name	route1Name	
RoadSegment	route1Type	route1Type	
RoadSegment	route2Name	route2Name	
RoadSegment	route2Type	route2Type	
RoadSegment	route3Name	route3Name	
RoadSegment	route3Type	route3Type	
RoadSegment	surfaceType	surfaceT	
RoadSegment	tunnel	tunnel	
RoadSegment	userFlag	userFlag	
RoadSegment	width	width	
Runway	description	feat_desc	desc
Runway	identifier	identifier	
Runway	length	length	
Runway	name	name	
Runway	pavementClassificationNumber	pavementCl	
Runway	runwayNumber	runwayNum	
Runway	status	status	
Runway	surfaceCondition	surfaceC	
Runway	surfaceMaterial	surfaceM	
Runway	surfaceType	surfaceT	
Runway	userFlag	userFlag	
Runway	width	width	
RunwayArrestingArea	description	feat_desc	desc
RunwayArrestingArea	identifier	identifier	
RunwayArrestingArea	length	length	
RunwayArrestingArea	name	name	
RunwayArrestingArea	surfaceMaterial	surfaceM	
RunwayArrestingArea	userFlag	userFlag	
RunwayArrestingArea	width	width	
RunwayBlastPad	description	feat_desc	desc
RunwayBlastPad	identifier	identifier	
RunwayBlastPad	length	length	
RunwayBlastPad	name	name	
RunwayBlastPad	pavementClassificationNumber	pavementCl	
RunwayBlastPad	status	status	
RunwayBlastPad	surfaceCondition	surfaceC	
RunwayBlastPad	surfaceMaterial	surfaceM	
RunwayBlastPad	surfaceType	surfaceT	
RunwayBlastPad	userFlag	userFlag	
RunwayCenterline	description	feat_desc	desc
RunwayCenterline	identifier	identifier	
RunwayCenterline	isDerived	isDerived	
RunwayCenterline	name	name	
RunwayCenterline	runwayDesignator	rwy_desg	rwyDesg

FeatureClass	AttributeName	Shp_Name	New Shp_Name
RunwayCenterline	userFlag	userFlag	
RunwayEnd	approachCategory	approach	appCat
RunwayEnd	description	feat_desc	desc
RunwayEnd	designGroup	designGr	
RunwayEnd	displacedDistance	displacedD	
RunwayEnd	ellipsoidElevation	ellipsoidE	
RunwayEnd	identifier	identifier	
RunwayEnd	landingDistanceAvailable	landingDis	
RunwayEnd	latitude	latitude	
RunwayEnd	longitude	longitude	
RunwayEnd	MagneticBearing	brngMagnet	
RunwayEnd	name	name	
RunwayEnd	orthometricElevation	elevation	
RunwayEnd	precisionApproachGuidance	precisio	
RunwayEnd	runwayAndStopwayDistanceAvailable	asDistAvai	
RunwayEnd	RunwayEndDesignator	RunwayEndD	
RunwayEnd	runwaySlope	rwySlope	
RunwayEnd	status	status	
RunwayEnd	takeOffDistanceAvailable	takeOffDis	
RunwayEnd	takeOffRunwayAvailable	takeOffRun	
RunwayEnd	thresholdType	threshol	
RunwayEnd	touchdownZoneElevation	tdzElevati	
RunwayEnd	touchdownZoneSlope	tdzSlope	
RunwayEnd	TrueBearing	brngTrue	
RunwayEnd	userFlag	userFlag	
RunwayHelipadDesignSurface	description	feat_desc	desc
RunwayHelipadDesignSurface	designSurfaceType	designSu	
RunwayHelipadDesignSurface	determination	determinat	
RunwayHelipadDesignSurface	determinationDate	detDate	
RunwayHelipadDesignSurface	identifier	identifier	
RunwayHelipadDesignSurface	name	name	
RunwayHelipadDesignSurface	safetyRegulations	safety_reg	safetyReg
RunwayHelipadDesignSurface	slope	slope	
RunwayHelipadDesignSurface	userFlag	userFlag	
RunwayHelipadDesignSurface	zoneInnerWidth	zone_inner	zoneInner
RunwayHelipadDesignSurface	zoneLength	zone_lengt	zoneLength
RunwayHelipadDesignSurface	zoneOuterWidth	zone_outer	zoneOuter
RunwayHelipadDesignSurface	zoneUse	zoneUse	
RunwayIntersection	description	feat_desc	desc
RunwayIntersection	identifier	identifier	
RunwayIntersection	name	name	
RunwayIntersection	pavementClassificationNumber	pavementCl	
RunwayIntersection	runwayDesignator1	rwy1_desgn	rwy1Desgn
RunwayIntersection	runwayDesignator2	rwy2_desgn	rwy2Desgn
RunwayIntersection	runwayDesignator3	rwy3_desgn	rwy3Desgn
RunwayIntersection	userFlag	userFlag	
RunwayLabel	description	feat_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
RunwayLabel	identifier	identifier	
RunwayLabel	name	name	
RunwayLabel	runwayDesignator	rwy_desg	rwyDesg
RunwayLabel	userFlag	userFlag	
RunwayLAHSO	color	color	
RunwayLAHSO	description	feat_desc	desc
RunwayLAHSO	identifier	identifier	
RunwayLAHSO	markingFeatureType	markingF	
RunwayLAHSO	name	name	
RunwayLAHSO	projectedRunwayDesignator	protected	
RunwayLAHSO	userFlag	userFlag	
RunwayProtectArea	description	feat_desc	desc
RunwayProtectArea	identifier	identifier	
RunwayProtectArea	length	length	
RunwayProtectArea	name	name	
RunwayProtectArea	userFlag	userFlag	
RunwaySafetyAreaBoundary	description	feat_desc	desc
RunwaySafetyAreaBoundary	determinationDate	detDate	
RunwaySafetyAreaBoundary	identifier	identifier	
RunwaySafetyAreaBoundary	length	length	
RunwaySafetyAreaBoundary	name	name	
RunwaySafetyAreaBoundary	userFlag	userFlag	
RunwaySegment	description	feat_desc	desc
RunwaySegment	identifier	identifier	
RunwaySegment	name	name	
RunwaySegment	pavementClassificationNumber	pavementCl	
RunwaySegment	status	status	
RunwaySegment	surfaceCondition	surfaceC	
RunwaySegment	surfaceMaterial	surfaceM	
RunwaySegment	surfaceType	surfaceT	
RunwaySegment	userFlag	userFlag	
SampleCollectionPoint	collectionPointLocation	locdesc	
SampleCollectionPoint	description	feat_desc	desc
SampleCollectionPoint	identifier	identifier	
SampleCollectionPoint	name	name	
SampleCollectionPoint	userFlag	userFlag	
SeaplaneLandingArea	description	feat_desc	desc
SeaplaneLandingArea	identifier	identifier	
SeaplaneLandingArea	name	name	
SeaplaneLandingArea	restriction	restrictn	
SeaplaneLandingArea	userFlag	userFlag	
SeaplaneRampCenterline	description	feat_desc	desc
SeaplaneRampCenterline	identifier	identifier	
SeaplaneRampCenterline	name	name	
SeaplaneRampCenterline	userFlag	userFlag	
SeaplaneRampSite	description	feat_desc	desc
SeaplaneRampSite	identifier	identifier	

FeatureClass	AttributeName	Shp_Name	New Shp_Name
SeaplaneRampSite	name	name	
SeaplaneRampSite	userFlag	userFlag	
SecurityArea	description	feat_desc	desc
SecurityArea	identifier	identifier	
SecurityArea	name	name	
SecurityArea	userFlag	userFlag	
SecurityIdDisplayArea	description	feat_desc	desc
SecurityIdDisplayArea	identifier	identifier	
SecurityIdDisplayArea	name	name	
SecurityIdDisplayArea	userFlag	userFlag	
SecurityPerimeterLine	description	feat_desc	desc
SecurityPerimeterLine	identifier	identifier	
SecurityPerimeterLine	name	name	
SecurityPerimeterLine	userFlag	userFlag	
Shoreline	description	shore_desc	desc
Shoreline	identifier	identifier	
Shoreline	name	name	
Shoreline	shorelineType	shr_typ	shoreType
Shoreline	userFlag	userFlag	
Shoulder	description	feat_desc	desc
Shoulder	identifier	identifier	
Shoulder	length	length	
Shoulder	name	name	
Shoulder	restricted	restricted	
Shoulder	shoulderType	shl_type	sholdrType
Shoulder	status	status	
Shoulder	surfaceMaterial	surfaceM	
Shoulder	userFlag	userFlag	
Shoulder	width	width	
Sidewalk	AmericanDisabilitiesAct	ada_acc	adaAcc
Sidewalk	description	walk_desc	desc
Sidewalk	identifier	identifier	
Sidewalk	length	length	
Sidewalk	name	name	
Sidewalk	primaryMaterial	pri_matl	priMatl
Sidewalk	userFlag	userFlag	
Sidewalk	walkUse	walkUse	
Sidewalk	width	width	
State	description	feat_desc	desc
State	identifier	identifier	
State	name	name	
State	userFlag	userFlag	
SterileArea	description	feat_desc	desc
SterileArea	identifier	identifier	
SterileArea	name	name	
SterileArea	userFlag	userFlag	
Stopway	description	feat_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
Stopway	identifier	identifier	
Stopway	length	length	
Stopway	name	name	
Stopway	status	status	
Stopway	surfaceMaterial	surfaceM	
Stopway	surfaceType	surfaceT	
Stopway	userFlag	userFlag	
Stopway	width	width	
TankSite	color	color	
TankSite	description	feat_desc	desc
TankSite	identifier	identifier	
TankSite	lightCode	lightCode	
TankSite	lightingType	lighting	
TankSite	markingFeatureType	markingF	
TankSite	name	name	
TankSite	tankType	tankType	
TankSite	topElevation	top_elv	topElev
TankSite	userFlag	userFlag	
TankSite	verticalStructureMaterial	vertical	
Taxiway	description	feat_desc	desc
Taxiway	designGroup	designGr	
Taxiway	directionality	direction	
Taxiway	identifier	identifier	
Taxiway	length	length	
Taxiway	markingFeatureType	markingF	
Taxiway	maximumSpeed	maxSpeed	
Taxiway	name	name	
Taxiway	status	status	
Taxiway	taxiwayDesignator	taxi_desgn	taxiDesgn
Taxiway	taxiwayId	taxiwayId	
Taxiway	taxiwayType	taxiwayT	
Taxiway	userFlag	userFlag	
Taxiway	width	width	
Taxiway	wingspan	wingspan	
TaxiwayHoldingPosition	description	feat_desc	desc
TaxiwayHoldingPosition	identifier	identifier	
TaxiwayHoldingPosition	lowVisibilityCategory	low_visi	lowVisCat
TaxiwayHoldingPosition	name	name	
TaxiwayHoldingPosition	runwayDesignator	rwy_desgn	rwyDesg
TaxiwayHoldingPosition	status	status	
TaxiwayHoldingPosition	taxiwayDesignator	taxi_desgn	taxiDesgn
TaxiwayHoldingPosition	userFlag	userFlag	
TaxiwayIntersection	description	feat_desc	desc
TaxiwayIntersection	identifier	identifier	
TaxiwayIntersection	name	name	
TaxiwayIntersection	userFlag	userFlag	
TaxiwaySegment	description	feat_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
TaxiwaySegment	identifier	identifier	
TaxiwaySegment	name	name	
TaxiwaySegment	pavementClassificationNumber	pavementCl	
TaxiwaySegment	status	status	
TaxiwaySegment	surfaceCondition	surfaceC	
TaxiwaySegment	surfaceMaterial	surfaceM	
TaxiwaySegment	taxiwayDesignator	taxi_desgn	taxiDesgn
TaxiwaySegment	taxiwayType	taxiwayT	
TaxiwaySegment	userFlag	userFlag	
TouchDownLiftOff	description	feat_desc	desc
TouchDownLiftOff	identifier	identifier	
TouchDownLiftOff	length	length	
TouchDownLiftOff	name	name	
TouchDownLiftOff	orthometricElevation	elevation	
TouchDownLiftOff	pavementClassificationNumber	pavementCl	
TouchDownLiftOff	surfaceCondition	surfaceC	
TouchDownLiftOff	surfaceMaterial	surfaceM	
TouchDownLiftOff	surfaceType	surfaceT	
TouchDownLiftOff	userFlag	userFlag	
TouchDownLiftOff	width	width	
Tower	color	color	
Tower	description	feat_desc	desc
Tower	identifier	identifier	
Tower	lightCode	lightCode	
Tower	lightingType	lighting	
Tower	markingFeatureType	markingF	
Tower	name	name	
Tower	userFlag	userFlag	
Tower	verticalStructureMaterial	vertical	
Tunnel	averageHeight	avg_ht	averageHt
Tunnel	averageWidth	avg_wd	averageWd
Tunnel	color	color	
Tunnel	description	feat_desc	desc
Tunnel	identifier	identifier	
Tunnel	lightingType	lighting	
Tunnel	markingFeatureType	markingF	
Tunnel	name	name	
Tunnel	tunnelLength	tunnel_len	tunnelLen
Tunnel	tunnelType	tun_typ	tunnelTyp
Tunnel	userFlag	userFlag	
Tunnel	verticalClearance	vert_clr	vertClr
UtilityLine	description	feat_desc	desc
UtilityLine	identifier	identifier	
UtilityLine	name	name	
UtilityLine	userFlag	userFlag	
UtilityLine	utilityType	utilityT	
UtilityPoint	description	feat_desc	desc

FeatureClass	AttributeName	Shp_Name	New Shp_Name
UtilityPoint	identifier	identifier	
UtilityPoint	name	name	
UtilityPoint	userFlag	userFlag	
UtilityPoint	utilityType	utilityT	
UtilityPolygon	description	feat_desc	desc
UtilityPolygon	identifier	identifier	
UtilityPolygon	name	name	
UtilityPolygon	userFlag	userFlag	
UtilityPolygon	utilityType	utilityT	
Wetland	description	wetln_desc	desc
Wetland	featureType	feat_typ	featType
Wetland	identifier	identifier	
Wetland	name	name	
Wetland	userFlag	userFlag	
Zoning	description	feat_desc	desc
Zoning	identifier	identifier	
Zoning	landOwnerRestriction	restrict	
Zoning	name	name	
Zoning	status	status	
Zoning	userFlag	userFlag	
Zoning	zoningClassification	zng_cls	zngClass

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