

at the state level. They are within the Siuslaw River approximately 0.75 miles from the airport property.

The other non-listed species listed as occurring within two miles of the airport are:

Only within the Siuslaw River

- Green sturgeon (*Acipenser medirostris*), a federal species of concern/no state listing
- Chum salmon (*Oncorhynchus keta*), no federal listing, but a state species of concern
- Steelhead (*Oncorhynchus mykiss*), A federal species of concern, and considered to be vulnerable by the state.
- Lichen (*Bryoria pseudocapillaris*), no federal or state listing, but considered to be rare
- Moss (*Campylopus schmidii*), no federal or state listing, but considered to be rare
- Fungus (*Elaphomyces reticulatus*), no federal or state listing, but considered to be rare
- Northern bog clubmoss (*Lycopodiella inundata*), no federal or state listing, but considered to be rare
- Broadwhorl tightcoil snail (*Pristiloma johnsoni*), no federal or state listing, but considered to be rare
- Purple martin (*Progne subis*), a federal and state species of concern

At this time, these species are not protected by state or federal regulations; however, future development within the airport property should require coordination with U.S. Fish and Wildlife Service, the Oregon State Department of Fish and Wildlife, and the Oregon Department of Agriculture.

## Floodplains

The airport property is outside of the 100-year floodplain of the Siuslaw River. As such, future development will not need to comply with FEMA's requirements for development within a 100-year floodplain.

## Parks and Recreation

Miller Park (also called Singing Pines Park) is located at 18th Street and Oak Street to the southeast of the airport property. This is a skatepark that covers just over 0.25 acres. No other parks are located within close proximity.

# Appendix A

## APPENDIX A

FLORENCE MUNICIPAL AIRPORT  
RUNWAY 15/33  
AIRPORT AND RUNWAY DATA

Airport elevation . . . . .	51 feet
Mean daily maximum temperature of the hottest month . . . . .	69.30 F.
Maximum difference in runway centerline elevation . . . . .	11 feet
Length of haul for airplanes of more than 60,000 pounds . . . . .	500 miles
Wet and slippery runways	

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots . . . . .	300 feet
Small airplanes with approach speeds of less than 50 knots . . . . .	800 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes . . . . .	2310 feet
95 percent of these small airplanes . . . . .	2850 feet
100 percent of these small airplanes . . . . .	3370 feet
Small airplanes with 10 or more passenger seats . . . . .	3910 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load . . . . .	5240 feet
75 percent of these large airplanes at 90 percent useful load . . . . .	6620 feet
100 percent of these large airplanes at 60 percent useful load . . . . .	5500 feet
100 percent of these large airplanes at 90 percent useful load . . . . .	7000 feet
Airplanes of more than 60,000 pounds . . . . .	Approximately 5030 feet

REFERENCE: Chapter 2 of AC 150/5325-4A, Runway Length Requirements for Airport Design, no Changes included.

FLORENCE MUNICIPAL AIRPORT  
AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category B  
 Airplane Design Group I (Small Airplanes Exclusively)  
 Airplane wingspan . . . . . 48.99 feet  
 Primary runway end approach visibility minimums are visual exclusively  
 Other runway end approach visibility minimums are visual exclusively  
 Airplane undercarriage width (1.15 x main gear track) . . . 14.95 feet

RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

Airplane Group/ARC

Runway centerline to parallel runway centerline simultaneous operations  
 when wake turbulence is not treated as a factor:

VFR operations with no intervening taxiway . . . . . 700 feet  
 VFR operations with one intervening taxiway . . . . . 700 feet  
 VFR operations with two intervening taxiways . . . . . 700 feet  
 IFR approach and departure with approach to near threshold 2500 feet less  
 100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.

Runway centerline to parallel runway centerline simultaneous operations  
 when wake turbulence is treated as a factor:

VFR operations . . . . . 2500 feet  
 IFR departures . . . . . 2500 feet  
 IFR approach and departure with approach to near threshold . . 2500 feet  
 IFR approach and departure with approach to far threshold 2500 feet plus  
 100 feet for each 500 feet of threshold stagger.  
 IFR approaches . . . . . 3400 feet

Runway centerline to parallel taxiway/taxilane centerline . 149.5 150 feet  
 Runway centerline to edge of aircraft parking . . . . . 125.0 125 feet  
 Runway width . . . . . 60 feet  
 Runway shoulder width . . . . . 10 feet  
 Runway blast pad width . . . . . 80 feet  
 Runway blast pad length . . . . . 60 feet  
 Runway safety area width . . . . . 120 feet  
 Runway safety area length beyond each runway end  
 or stopway end, whichever is greater . . . . . 240 feet  
 Runway object free area width . . . . . 250 feet  
 Runway object free area length beyond each runway end  
 or stopway end, whichever is greater . . . . . 240 feet  
 Clearway width . . . . . 500 feet  
 Stopway width . . . . . 60 feet

Obstacle free zone (OFZ):

Runway OFZ width . . . . . 250 feet  
 Runway OFZ length beyond each runway end . . . . . 200 feet  
 Inner-approach OFZ width . . . . . 250 feet  
 Inner-approach OFZ length beyond approach light system . . . . 200 feet  
 Inner-approach OFZ slope from 200 feet beyond threshold . . . 50:1

Inner-transitional OFZ slope . . . . . 0:1

Runway protection zone at the primary runway end:

Width 200 feet from runway end . . . . . 250 feet  
 Width 1200 feet from runway end . . . . . 450 feet  
 Length . . . . . 1000 feet

Runway protection zone at other runway end:

Width 200 feet from runway end . . . . . 250 feet  
 Width 1200 feet from runway end . . . . . 450 feet  
 Length . . . . . 1000 feet

Departure runway protection zone:

Width 200 feet from the far end of TORA . . . . . 250 feet  
 Width 1200 feet from the far end of TORA . . . . . 450 feet  
 Length . . . . . 1000 feet

Threshold surface at primary runway end:

Distance out from threshold to start of surface . . . . . 0 feet  
 Width of surface at start of trapezoidal section . . . . . 250 feet  
 Width of surface at end of trapezoidal section . . . . . 700 feet  
 Length of trapezoidal section . . . . . 2250 feet  
 Length of rectangular section . . . . . 2750 feet  
 Slope of surface . . . . . 20:1

Threshold surface at other runway end:

Distance out from threshold to start of surface . . . . . 0 feet  
 Width of surface at start of trapezoidal section . . . . . 250 feet  
 Width of surface at end of trapezoidal section . . . . . 700 feet  
 Length of trapezoidal section . . . . . 2250 feet  
 Length of rectangular section . . . . . 2750 feet  
 Slope of surface . . . . . 20:1

Taxiway centerline to parallel taxiway/taxilane centerline	68.8	69 feet
Taxiway centerline to fixed or movable object . . . . .	44.3	44.5 feet
Taxilane centerline to parallel taxilane centerline . . . . .	63.9	64 feet
Taxilane centerline to fixed or movable object . . . . .	39.4	39.5 feet
Taxiway width . . . . .	25.0	25 feet
Taxiway shoulder width . . . . .		10 feet
Taxiway safety area width . . . . .	49.0	49 feet
Taxiway object free area width . . . . .	88.6	89 feet
Taxilane object free area width . . . . .	78.8	79 feet
Taxiway edge safety margin . . . . .		5 feet
Taxiway wingtip clearance . . . . .	19.8	20 feet
Taxilane wingtip clearance . . . . .	14.9	15 feet

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.

FLORENCE MUNICIPAL AIRPORT  
DECLARED DISTANCE LENGTHS (feet)  
(EXISTING)

Aircraft Approach Category B  
Airplane Design Group I (Small Airplanes Exclusively)  
Runway 15 approach visibility minimums are visual exclusively  
Runway 33 approach visibility minimums are visual exclusively

	Runway 15	and 33
Runway length . . . . .	3000	3000
Stopway length . . . . .	0	0
Clearway length . . . . .	0	0
Runway safety area length beyond the stop end of runway . . . .	240	240
Runway object free area length beyond the stop end of runway .	240	240

The following distances are positive in the direction of aircraft operations and negative in the opposite direction:

Distance from:

the departure end of runway to the beginning of clearway . . .	0	0
the departure end of runway to the beginning of departure RPZ	200	200
the approach end of runway to the start of takeoff . . . . .	0	0
the approach end of runway to the threshold . . . . .	0	0
the end of approach RPZ to the approach end of runway . . .	200	200

The following lengths are standard RSA and ROFA lengths:

Runway safety area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

Runway object free area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

The following declared distances are for Approach Category A and B airplanes of 12,500 pounds or less maximum certificated takeoff weight exclusively.

	Runway 15 (feet)	Runway 33 (feet)
Takeoff run available (TORA)	3000	3000
Takeoff distance available (TODA)	3000	3000
Accelerate-stop distance available (ASDA)	3000	3000
Landing distance available (LDA)	3000	3000
Usable stopway length	0	0
Distance from the stop end of LDA to runway end	0	0
Distance from the departure end of TORA to RPZ	200	200
Distance from the approach RPZ to the threshold	200	200

REFERENCE: Appendix 14 of AC 150/5300-13, Airport Design, including Changes 1 through 4.

FLORENCE MUNICIPAL AIRPORT  
DECLARED DISTANCE LENGTHS (feet)  
FUTURE (PHASE 1)

Aircraft Approach Category B  
Airplane Design Group I (Small Airplanes Exclusively)  
Runway 15 approach visibility minimums are visual exclusively  
Runway 33 approach visibility minimums are visual exclusively

	Runway 15	and 33
Runway length . . . . .	3400	3400
Stopway length . . . . .	0	0
Clearway length . . . . .	0	0
Runway safety area length beyond the stop end of runway . . . .	240	240
Runway object free area length beyond the stop end of runway .	240	240

The following distances are positive in the direction of aircraft operations and negative in the opposite direction:

Distance from:

the departure end of runway to the beginning of clearway . .	0	0
the departure end of runway to the beginning of departure RPZ	200	200
the approach end of runway to the start of takeoff . . . . .	0	0
the approach end of runway to the threshold . . . . .	200	0
the end of approach RPZ to the approach end of runway . . .	200	200

The following lengths are standard RSA and ROFA lengths:

Runway safety area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

Runway object free area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

The following declared distances are for Approach Category A and B airplanes of 12,500 pounds or less maximum certificated takeoff weight exclusively.

	Runway 15 (feet)	Runway 33 (feet)
Takeoff run available (TORA)	3400	3400
Takeoff distance available (TODA)	3400	3400
Accelerate-stop distance available (ASDA)	3400	3400
Landing distance available (LDA)	3200	3400
Usable stopway length	0	0
Distance from the stop end of LDA to runway end	0	0
Distance from the departure end of TORA to RPZ	200	200
Distance from the approach RPZ to the threshold	400	200

REFERENCE: Appendix 14 of AC 150/5300-13, Airport Design, including Changes 1 through 4.

FLORENCE MUNICIPAL AIRPORT  
DECLARED DISTANCE LENGTHS (feet)  
FUTURE (PHASE 2)

Aircraft Approach Category B  
Airplane Design Group I (Small Airplanes Exclusively)  
Runway 15 approach visibility minimums are visual exclusively  
Runway 33 approach visibility minimums are visual exclusively

	Runway 15	and 33
Runway length . . . . .	3400	3400
Stopway length . . . . .	0	0
Clearway length . . . . .	0	0
Runway safety area length beyond the stop end of runway . . . .	240	240
Runway object free area length beyond the stop end of runway .	240	240

The following distances are positive in the direction of aircraft operations and negative in the opposite direction:

Distance from:

the departure end of runway to the beginning of clearway . .	0	0
the departure end of runway to the beginning of departure RPZ	200	200
the approach end of runway to the start of takeoff . . . . .	0	0
the approach end of runway to the threshold . . . . .	0	0
the end of approach RPZ to the approach end of runway . . .	200	200

The following lengths are standard RSA and ROFA lengths:

Runway safety area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

Runway object free area length to be provided:

beyond the stop end of ASDA . . . . .	240	240
beyond the stop end of LDA . . . . .	240	240
before the approach end of LDA . . . . .	240	240

The following declared distances are for Approach Category A and B airplanes of 12,500 pounds or less maximum certificated takeoff weight exclusively.

	Runway 15 (feet)	Runway 33 (feet)
Takeoff run available (TORA)	3400	3400
Takeoff distance available (TODA)	3400	3400
Accelerate-stop distance available (ASDA)	3400	3400
Landing distance available (LDA)	3400	3400
Usable stopway length	0	0
Distance from the stop end of LDA to runway end	0	0
Distance from the departure end of TORA to RPZ	200	200
Distance from the approach RPZ to the threshold	200	200

REFERENCE: Appendix 14 of AC 150/5300-13, Airport Design, including Changes 1 through 4.



# Glossary of Aviation Terms

## GLOSSARY OF AVIATION TERMS

*The following glossary of aviation terms was compiled and edited by David Miller, AICP for use in aviation planning projects.*

**Accelerate Stop Distance Available (ASDA)** – The length of the takeoff run available plus the length of a stopway, when available.

**Agricultural Aviation** – The use of fixed-wing or rotor-wing aircraft in the aerial application of agricultural products (i.e., fertilizers, pesticides, etc.).

**Air Cargo** - All commercial air express and air freight with the exception of airmail and parcel post.

**Air Carrier/Airline** - All regularly scheduled airline activity performed by airlines certificated in accordance with Federal Aviation Regulations (FAR Part 121).

**Air Taxi** - Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter (FAR Part 135).

**Aircraft Approach Category** - A grouping of aircraft based how fast they come in for landing. As a rule of thumb, slower approach speeds mean smaller airport dimensions and faster speeds mean larger dimensions from runway widths to the separation between runways and taxiways.

The aircraft approach categories are:

Category A - Speed less than 91 knots;

Category B - Speed 91 knots or more but less than 121 knots

Category C - Speed 121 knots or more but less than 141 knots

Category D - Speed 141 knots or more but less than 166 knots

Category E - Speed 166 knots or more

**Aircraft Operation** - A landing or takeoff is one operation. An aircraft that takes off and then lands creates two aircraft operations.

**Aircraft Owners and Pilots Association (AOPA)** – International aviation organization.

**Aircraft Holding Area** – An area typically located adjacent to a taxiway and runway end designed to accommodate aircraft prior to departure (for pre-takeoff engine checks, instrument flight plan

clearances, etc.). Per FAA design standards, aircraft holding areas should be located outside the runway safety area (RSA) and obstacle free zone (OFZ) and aircraft located in the holding area should not interfere with normal taxiway use (taxiway object free area). Sometimes referred to as holding bays or “elephant ear.” Smaller areas (aircraft turnarounds) are used to facilitate aircraft movement on runways without exit taxiways where back-taxiing is required.

**Airplane Design Group** - A grouping of airplanes based on wingspan. As with Approach Category, the wider the wingspan, the bigger the aircraft is, the more room it takes up for operating on an airport. The Airplane Design Groups are:

Group I:	Up to, but not including 49 feet
Group II:	49 feet up to, but not including 79 feet
Group III:	79 feet up to, but not including 118 feet
Group IV:	118 feet up to, but not including 171 feet
Group V:	171 feet up to, but not including 214 feet
Group VI:	214 feet up to, but not including 262 feet

**Airport** - A landing area regularly used by aircraft for receiving or discharging passengers or cargo, including heliports and seaplane bases.

**Airport Improvement Program (AIP)** - The funding program administered by the Federal Aviation Administration (FAA) with user fees which are dedicated to improvement of the national airport system. This program currently provides 95% of funding for eligible airport improvement projects. The local sponsor of the project (i.e., airport owner) provides the remaining 5% known as the "match."

**Airport Layout Plan (ALP)** - The FAA approved drawing which shows the existing and anticipated layout of an airport for the next 20 years or so. An ALP is prepared using FAA design standards.

**Airport Reference Code (ARC)** - An FAA airport coding system. The system looks at the types of aircraft which use an airport most often and then based upon the characteristics of those airplanes (approach speed and wing span), assigns a code. The code is then used to determine how the airport is designed and what design standards are used. An airport designed for a Piper Cub (an aircraft in the A-I approach/design group) would take less room than a Boeing 747 (an aircraft in the D-V approach/design group).

**Airport Reference Point (ARP)** – The approximate mid-point of an airfield that is designated as the official airport location.

**Airports District Office (ADO)** - The "local" office of the FAA that coordinates planning and construction projects. Staff in the ADO is typically assigned to a particular state, i.e., Oregon, Idaho, or Washington. The ADO for Oregon, Washington and Idaho is located in Renton, Washington.

**Airspace** - The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of traffic.

**Alternate Airport** – An airport that is available for landing when the intended airport becomes unavailable. Required for instrument flight planning in the event that weather conditions at destination airport fall below approach minimums (cloud ceiling or visibility).

**Annual Service Volume (ASV)** - An estimate of how many airplanes and airport can handle based upon the number and types of runways, the aircraft mix (large vs. small, etc), and weather conditions with a “reasonable” amount of delay. ASV is a primary planning standard used to determine when a runway (or an airport) is nearing its capacity, and may require new runways or taxiways. As operations levels approach ASV, the amount of delay per operation increases; once ASV is exceeded, “excessive” delay generally exists.

**Approach End of Runway** - The end of the runway used for landing. Pilots generally land into the wind and choose a runway end that best aligns with the wind.

**Approach Surface - Also FAR Part 77 Approach or Obstacle Clearance Approach** - An imaginary (invisible) surface which rises off the ends of a runway which must be kept clear to provide airspace for an airplane to land or take off in. The size of the approach surface will vary depending upon how big and how fast the airplanes are, and whether or not the runway has an instrument approach for landing in bad weather.

**Apron** - An area on an airport designated for the parking, loading, fueling, or servicing of aircraft (also referred to as tarmac and ramp).

**ARFF** - Aircraft Rescue and Fire Fighting, i.e., an on airport response required for certificated commercial service airports (see FAR Part 139).

**Automated Surface Observation System (ASOS) and Automated Weather Observation System (AWOS)** – Automated observation systems providing continuous on-site weather data, designed to support aviation activities and weather forecasting.

**AVGAS** - Gasoline used in airplanes with piston engines.

**Avigation Easement** - A form of limited property right purchase that establishes legal land use control prohibiting incompatible development of areas required for airports or airport-related purposes.

**Back-Taxiing** – The practice of aircraft taxiing on a runway before takeoff or after landing, normally, in the opposite direction of the runway’s traffic pattern. Back-taxiing is generally required on runways without taxiway access to both runway ends.

**Based Aircraft** - Aircraft stationed at an airport on an annual basis. Used as a measure of activity at an airport.

**Capacity** - A measure of the maximum number of aircraft operations that can be accommodated on the runways of an airport in an hour.

**Ceiling** – The height above the ground or water to base of the lowest cloud layers covering more than 50 percent of the sky.

**Charter** - Operations of aircraft "for hire" for specific trips, commonly referred to an aircraft available for charter.

**Circle to Land or Circling Approach** – An instrument approach procedure that allows pilots to “circle” the airfield to land on any authorized runway once visual contact with the runway environment is established and maintained throughout the procedure.

**Common Traffic Advisory Frequency (CTAF)** – A frequency used by pilots to communicate and obtain airport advisories at an uncontrolled airport.

**Conical Surface** - One of the "FAR Part 77 "Imaginary" Surfaces. The conical surface extends outward and upward from the edge of the horizontal surface at a slope of 20:1 to a horizontal distance of 4,000 feet.

**Critical Aircraft** - Aircraft which controls one or more design items based on wingspan, approach speed and/or maximum certificated takeoff weight. The same aircraft may not be critical to all design items.

**Crosswind** - When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft. Sometimes used in reference to a runway as in "Runway 7/25 is the crosswind runway" meaning that it is not the runway normally used for the prevailing wind condition. As an aeronautical term, a direct crosswind is exactly 90-degrees opposite the direction of flight; more acute crosswind angles are known as quartering headwinds or tailwinds. From an

airport planning perspective, crosswind runways are generally justified when a primary runway accommodates less than 95 percent of documented wind conditions (see wind rose).

**Crosswind Runway** – A secondary runway that is oriented to allow aircraft to safely take off or land when wind conditions do not favor the primary runway.

**Decision Height (DH)** – For precision instrument approaches, the height (typically in feet or meters above runway end touchdown zone elevation) at which a decision to land or execute a missed approach must be made by the pilot.

**Departure Surface** – A surface that extends upward from the departure end of an instrument runway that should be free of any obstacle penetrations. For instrument runways other than air carrier, the slope is 40:1, extending 10,200 feet from the runway end. Air carrier runways have a similar surface designed for one-engine inoperative conditions with a slope of 62.5: 1.

**Displaced Threshold** – A landing threshold that is located at a point other than the runway end. Usually provided to mitigate close-in obstructions to runway approaches for landing aircraft.

**DNL** - Day-night sound levels, a method of measuring noise exposure.

**Easement** – An agreement that provides use or access of land or airspace (see aviation easement) in exchange for compensation.

**Enplanements** - Domestic, territorial, and international revenue passengers who board an aircraft in the states in scheduled and non-scheduled service of aircraft in intrastate, interstate, and foreign commerce and includes in transit passengers (passengers on board international flights that transit an airport in the US for non-traffic purposes).

**Entitlements** - Distribution of Airport Improvement Plan (AIP) funds from the Airport & Airways Trust Fund to commercial service airport sponsors based on enplanements or cargo landed weights. Also, Non-Primary General Aviation Entitlements now incorporated in AIP funding for general aviation airports.

**Federal Aviation Administration (FAA)** - The FAA is the branch of the U.S. Department of Transportation that is responsible for the development of airports and air navigation systems.

**FAR Part 77** - Federal Aviation Regulations which establish standards for determining obstructions in navigable airspace. FAR stands for Federal Aviation Regulations, Part 77 refers to the section in the regulations, i.e., #77. FAR Part 77 is commonly used to refer to imaginary surfaces, the primary,

transitional, horizontal, conical, and approach surfaces. These surfaces vary with the size and type of airport.

**FAR Part 139** - Federal Aviation Regulations which establish standards for airports with scheduled passenger commercial air service. Airports accommodating scheduled passenger service with aircraft more than 9 passenger seats must be certified as a "Part 139" airport. Airports that are not certified under Part 139 may accommodate scheduled commercial passenger service with aircraft having 9 passenger seats or less.

**Final Approach Fix (FAF)** – The fix (location) from which the final instrument approach to an airport is executed; also identifies beginning of final approach segment.

**Final Approach Point (FAP)** – For non-precision instrument approaches, the point at which an aircraft is established inbound for the approach and where the final descent may begin.

**Fixed Base Operator (FBO)** - An individual or company located at an airport providing aviation services. Sometimes further defined as a "full service" FBO or a limited service. Full service FBOs typically provide a broad range of services (flight instruction, aircraft rental, charter, fueling, repair, etc) where a limited service FBO provides only one or two services (such as fueling, flight instruction or repair).

**Fixed Wing** - A plane with one or more "fixed wings," as opposed to a helicopter that utilizes a rotary wing.

**Flexible Pavement** – Typically constructed with an asphalt surface course and one or more layers of base and subbase courses that rest on a subgrade layer.

**Flight Service Station (FSS)** - An office where a pilot can call (on the ground or in the air) to get weather and airport information. Flight plans are also filed with the FSS.

**General Aviation (GA)** - All civil (non-military) aviation operations other than scheduled air services and non-scheduled air transport operations for hire.

**Glide Slope (GS)** – For precision instrument approaches, such as an instrument landing system (ILS), the component that provides electronic vertical guidance to aircraft. Visual guidance indicators (VGI) define a glide slope (glide path) through a series of colored lights that are visible to pilots when approaching a runway end for landing.

**Global Positioning System (GPS)** - GPS is a system of navigating which uses satellites (SATNAV) to establish the location and altitude of an aircraft. GPS supports both enroute flight and instrument approach procedures.

**Helicopter Landing Pad (Helipad)** – A designated landing area for rotor wing aircraft. Requires protected FAR Part 77 imaginary surfaces, as defined for heliports (FAR Part 77.29).

**Helicopter Parking Area** – A designated area for rotor wing aircraft parking that is typically accessed via hover-taxi or ground taxiing from a designated landing area (e.g., helipad or runway-taxiway system). If not used as a designated landing area, helicopter parking pads do not require dedicated FAR Part 77 imaginary surfaces.

**Heliport** – A designated helicopter landing facility (as defined by FAR Part 77).

**Height Above Airport (HAA)** – The height of the published minimum descent altitude (MDA) above the published airport elevation. This is normally published in conjunction with circling minimums.

**High Intensity Runway Lights (HIRL)** - High intensity (i.e., very bright) lights are used on instrument runways on instrument runways. The bright runway lights help pilots to see the runway when visibility is poor.

**High Speed (Taxiway) Exit** – An acute-angled exit taxiway extending from a runway to an adjacent parallel taxiway which allows landing aircraft to exit the runway at a higher rate of speed than is possible with standard (90-degree) exit taxiways.

**Hold/Holding Procedure** – A defined maneuver in controlled airspace that allows aircraft to circle above a fixed point (often over a navigational aid or GPS waypoint) and altitude while awaiting further clearance from air traffic control.

**Home Built Aircraft** - An aircraft built by an amateur; not an FAA Certified factory built aircraft.

**Horizontal Surface** - One of the FAR Part 77 Imaginary (invisible) Surfaces. The horizontal surface is an imaginary flat surface 150 feet above the established airport elevation. Its perimeter is constructed by swinging arcs (circles) with a radius of 5,000 feet for all runways designated as utility or general; and 10,000 feet for all other runways from the center of each end of the primary surface and connecting the adjacent arc by straight lines. The resulting shape looks like a football stadium. It could also be described as a rectangle with half circles on each end with the runway in the middle.

**Initial Approach Point of Fix (IAP/IAF)** – For instrument approaches, a designated point where an aircraft may begin the approach procedure.



**Instrument Approach Procedure (IAP)** – A series of defined maneuvers designed to enable the safe transition between enroute instrument flight and landing under instrument flight conditions at a particular airport or heliport. IAPs define specific requirements for aircraft altitude, course, and missed approach procedures. See precision or nonprecision instrument approach.

**Instrument Flight Rules (IFR)** - IFR refers to the set of rules pilots must follow when they are flying in bad weather. Pilots are required to follow these rules when operating in controlled airspace with visibility (ability to see in front of themselves) of less than three miles and/or ceiling (a layer of clouds) lower than 1,000 feet.

**Instrument Landing System (ILS)** - An ILS is a system used to guide a plane in for a landing in bad weather. Sometimes referred to as a precision instrument approach, it is designed to provide an exact approach path for alignment and descent of aircraft. Generally consists of a localizer, glide slope, outer marker, middle marker, and approach lights.

**Instrument Meteorological Conditions (IMC)** - Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling less than minima specified for visual meteorological conditions.

**Instrument Runway** - A runway equipped with electronic and visual navigational aids that has been designated for a straight-in precision or nonprecision instrument approach.

**Itinerant Operation** - All aircraft operations at an airport other than local, i.e., flights that come in from another airport.

**Jet Fuel** – Highly refined grade of kerosene used by turbine engine aircraft. Jet-A is currently the common commercial grade of jet fuel.

**Landing Area** - That part of the movement area intended for the landing and takeoff of aircraft.

**Landing Distance Available (LDA)** – The length of runway which is available and suitable for the ground run of an airplane landing.

**Left Traffic** – A term used to describe which side of a runway the airport traffic pattern is located. Left traffic indicates that the runway will be to the pilot's left when in the traffic pattern. Left traffic is standard unless otherwise noted in facility directories at a particular airport.

**Large Aircraft** - An aircraft that weighs more than 12,500 lbs.

**Local Area Augmentation System (LAAS)** – GPS-based instrument approach that utilizes ground-based systems to augment satellite coverage to provide vertical (glideslope) and horizontal (course) guidance. LAAS approaches have the technical capabilities to provide approach minimums

comparable to a Category I and II instrument landing system (ILS). The FAA indicates that a LAAS system can support approaches to multiple runways and potentially multiple airports within a range of approximately 30 nautical miles.

**Local Operation** - Aircraft operation in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.

**Localizer** – For precision instrument approaches, such as an instrument landing system (ILS), the component that provides electronic lateral (course) guidance to aircraft.

**LORAN C** - A navigation system using land based radio signals, which indicates position and ground speed, but not elevation. (See GPS)

**Localizer Performance with Vertical Guidance (LPV)** – Satellite navigation (SATNAV) based GPS approaches providing “near category I” precisions approach capabilities with course and vertical guidance LPV approaches are expected to eventually replace traditional step- down, VOR and NDB procedures by providing a constant, ILS glideslope-like descent path. LPV approaches use high-accuracy WAAS signals, which allows narrower glideslope and approach centerline obstacle clearance areas, safely providing decision altitudes as low as 250 feet, compared with 200 feet for ILS.

**Magnetic Declination** – Also called magnetic variation, is the angle between magnetic north and true north. Declination is considered positive east of true north and negative when west. Magnetic declination changes over time and with location. Runway end numbers, which reflect the magnetic heading/alignment (within 5 degrees +/-) occasionally require change due to declination.

**MALS** - **Medium-intensity Approach Lighting System with Runway alignment indicator lights.** An airport lighting facility which provides visual guidance to landing aircraft.

**Medevac** - Fixed wing or rotor-wing aircraft used to transport critical medical patients. These aircraft are equipped to provide life support during transport.

**Medium Intensity Runway Lights (MIRL)** - Runway lights which are not as intense as HIRLs (high intensity runway lights). Typical at medium and smaller airports which do not have sophisticated instrument landing systems.

**Microwave Landing System (MLS)** - An instrument landing system operating in the microwave spectrum, which provides lateral and vertical guidance to aircraft with compatible equipment. It was touted as the replacement for the ILS but never achieved this status.

**Minimum Descent Altitude (MDA)** – The lowest altitude in a nonprecision instrument approach that an aircraft may descend without establishing visual contact with the runway or airport environment.

**Minimums** - Weather condition requirements established for a particular operation or type of operation.

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

**Missed Approach Point (MAP)** – The defined location in a nonprecision instrument approach where the procedure must be terminated if the pilot has not visually established the runway or airport environment.

**Movement Area** - The runways, taxiways and other areas of the airport used for taxiing, takeoff and landing of aircraft, i.e., for aircraft movement.

**MSL** - Elevation above Mean Sea Level.

**National Plan of Integrated Airport Systems (NPIAS).** The NPIAS is the federal airport classification system that includes public use airports that meet specific eligibility and activity criteria. A “NPIAS designation” is required for an airport to be eligible to receive FAA funding for airport projects.

**Navigational Aid (Navaid)** - Any visual or electronic device that helps a pilot navigate. Can be for use to land at an airport or for traveling from point A to point B.

**Noise Contours** – Continuous lines of equal noise level usually drawn around a noise source, such as runway, highway or railway. The lines are generally plotted in 5-decibel increments, with higher noise levels located nearer the noise source, and lesser exposure levels extending away from the source.

**Non-directional Beacon (NDB)** - Non-Directional Beacon which transmits a signal on which a pilot may "home" using equipment installed in the aircraft.

**Non-Precision Instrument (NPI) Approach** - A non-precision instrument approach provides horizontal (course) guidance to pilots for landing. NPI approaches often involve a series of “step down” sequences where aircraft descend in increments (based on terrain clearance), rather than following a continuous glide path. The pilot is responsible for maintaining altitude control between approach segments since no "vertical" guidance is provided.

**Obstacle Clearance Surface (OCS)** – As defined by FAA, an approach surface that is used in conjunction with alternative threshold siting/clearing criteria to mitigate obstructions within runway approach surfaces. Dimensions, slope and placement depend on runway type and approach capabilities. Also known as Obstacle Clearance Approach (OCA).

**Obstruction** - An object (tree, house, road, phone pole, etc) that penetrates an imaginary surface described in FAR Part 77.

**Obstruction Chart (OC)** - A chart that depicts surveyed obstructions that penetrate an FAR Part 77 imaginary surface surrounding an airport. OC charts are developed by the National Ocean Service (NOS) based on a comprehensive survey that provides detailed location (latitude/longitude coordinates) and elevation data in addition to critical airfield data.

**Parallel Taxiway** – A taxiway that is aligned parallel to a runway, with connecting taxiways to allow efficient movement of aircraft between the runway and taxiway. The parallel taxiway effectively separates taxiing aircraft from arriving and departing aircraft located on the runway. Used to increase runway capacity and improve safety.

**Passenger Facility Charge (PFC)** – A user fee charged by public agencies controlling a commercial service airport can charge enplaning passengers a fee facility charge. Public agencies must apply to the FAA and meet certain requirements in order to impose a PFC.

**Precision Approach Path Indicator (PAPI)** - A system of lights located by the approach end of a runway that provides visual approach slope guidance to aircraft during approach to landing. The lights typically show green if a pilot is on the correct flight path, and turn red if a pilot is too low.

**Precision Instrument Runway (PIR)** - A runway served by a "precision" instrument approach landing system. The precision landing systems allows properly equipped airplanes and trained pilots to land in bad weather.

**Precision Instrument Approach** - A precision instrument approach is a system which helps guide pilots in for a landing in thick fog and provides "precise" guidance as opposed to a non-precision approach that is less precise.

**Primary Runway** - That runway which provides the best wind coverage, etc., and receives the most usage at the airport.

**Primary Surface** - One of the FAR Part 77 Imaginary Surfaces, the primary surface is centered on top of the runway and extends 200 feet beyond each end. The width is from 250' to 1,000' wide depending upon the type of airplanes using the runway.

**Procedure Turn (PT)** - A maneuver in which a turn is made away from a designated track followed by a turn in an opposite direction to permit an aircraft to intercept the track in the opposite direction (usually inbound).

**Relocated Threshold** – A runway threshold (takeoff and landing point) that is located at a point other than the runway end. Usually provided to mitigate nonstandard runway safety area (RSA) dimensions beyond the end of a runway.

**Rigid Pavement** – Typically constructed of Portland cement concrete (PCC), consisting of a slab placed on a prepared layer of imported materials.

**Rotorcraft** - A helicopter.

**Runway** – A defined area intended to accommodate aircraft takeoff and landing. Runways may be paved (asphalt or concrete) or unpaved (gravel, turf, dirt, etc.), depending on use. Water runways are defined takeoff and landing areas for use by seaplanes.

**Runway End Identifier Lights (REILs)** - These are distinctive flashing lights that help a pilot identify the runway.

**Runway Object Free Area (OFA)** – A defined area surrounding a runway that should be free of any obstructions that could interfere with aircraft operations. The dimensions for the OFA increase for runways accommodating larger or faster aircraft.

**Runway Protection Zone (RPZ)** - An area off the end of the runway that is intended to be clear in case an aircraft lands short of the runway. The size is small for airports serving only small airplanes and gets bigger for airports serving large airplanes. The RPZ used to be known as a clear zone – which was a good descriptive term because you wanted to keep it clear.

**Runway Safety Area (RSA)** – A prepared ground area surrounding a runway that is intended to accommodate inadvertent aircraft passage without causing damage. The dimensions for the RSA increase for runways accommodating larger or faster aircraft.

**Segmented Circle** - A system of visual indicators designed to show a pilot in the air the direction of the traffic pattern at that airport.

**Small Aircraft** - An aircraft that weighs less than 12,500 lbs.

**Straight-In Approach** – An instrument approach that directs aircraft to a specific runway end.

**Stop and Go** – An aircraft operation where the aircraft lands and comes to a full stop on the runway before takeoff is initiated.

**T-Hangar** – A rectangular aircraft storage hangar with several interlocking "T" units that minimizes building per storage unit. Usually two-sided with either bi-fold or sliding doors.

**Takeoff Distance Available (TODA)** – the length of the takeoff run available plus the length of clearway, if available.

**Takeoff Run Available (TORA)** – the length of runway available and suitable for the ground run of aircraft when taking off.

**Threshold** – The beginning of that portion of a runway that is useable for landing.

**Tiedown** - A place where an aircraft is parked and "tied down." Surface can be grass, gravel or paved.

**Touch and Go** – An aircraft operation involving a landing followed by a takeoff without the aircraft coming to a full stop or exiting the runway.

**Traffic Pattern** - The flow of traffic that is prescribed for aircraft landing and taking off from an airport. Traffic patterns are typically rectangular in shape, with upwind, crosswind, base and downwind legs and a final approach surrounding a runway.

**Transitional Surfaces** - One of the FAR Part 77 Imaginary Surfaces, the transitional surface extend outward and upward at right angles to the runway centerline and the extended runway centerline at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces.

**Transport Airport** - An airport designed and constructed to serve large commercial airliners. Portland International and SEATAC are good examples of transport airports.

**Utility Airport** - An airport designed and constructed to serve small planes. Aurora State Airport in Oregon, Nampa Airport in Idaho, or Arlington Airport in Washington are examples of utility airports.

**Vertical Navigation (VNAV)** – Vertical navigation descent data or descent path, typically associated with published GPS instrument approaches. The use of any VNAV approach technique requires operator approval, certified VNAV-capable avionics, and flight crew training.

**Visual Approach Slope Indicator (VASI)** - A system of lights located by the approach end of a runway which provides visual approach slope guidance to aircraft during approach to landing. The

lights typically show some combination of green and white if a pilot is on the correct flight path, and turn red if a pilot is too low.

**Visual Flight Rules (VFR)** - Rules that govern the procedures to conducting flight under visual conditions. The term is also used in the US to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

**Visual Guidance Indicator (VGI)** – Equipment designed to provide visual guidance for pilots for landing through the use of different color light beams. Visual Approach Slope Indicators (VASI) and Precision Approach Path Indicators (PAPI) defined above are examples.

**Waypoint** – A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.

**Wide Area Augmentation System (WAAS)** – GPS-based instrument approach that can provide both vertical (glideslope) and horizontal (course) guidance. WAAS-GPS approaches have the technical capabilities to provide approach minimums nearly comparable to a Category I instrument landing system (ILS).

**Wind Rose** - A diagram indicating the prevalence of winds from various directions in relation to existing or proposed runway alignments.