



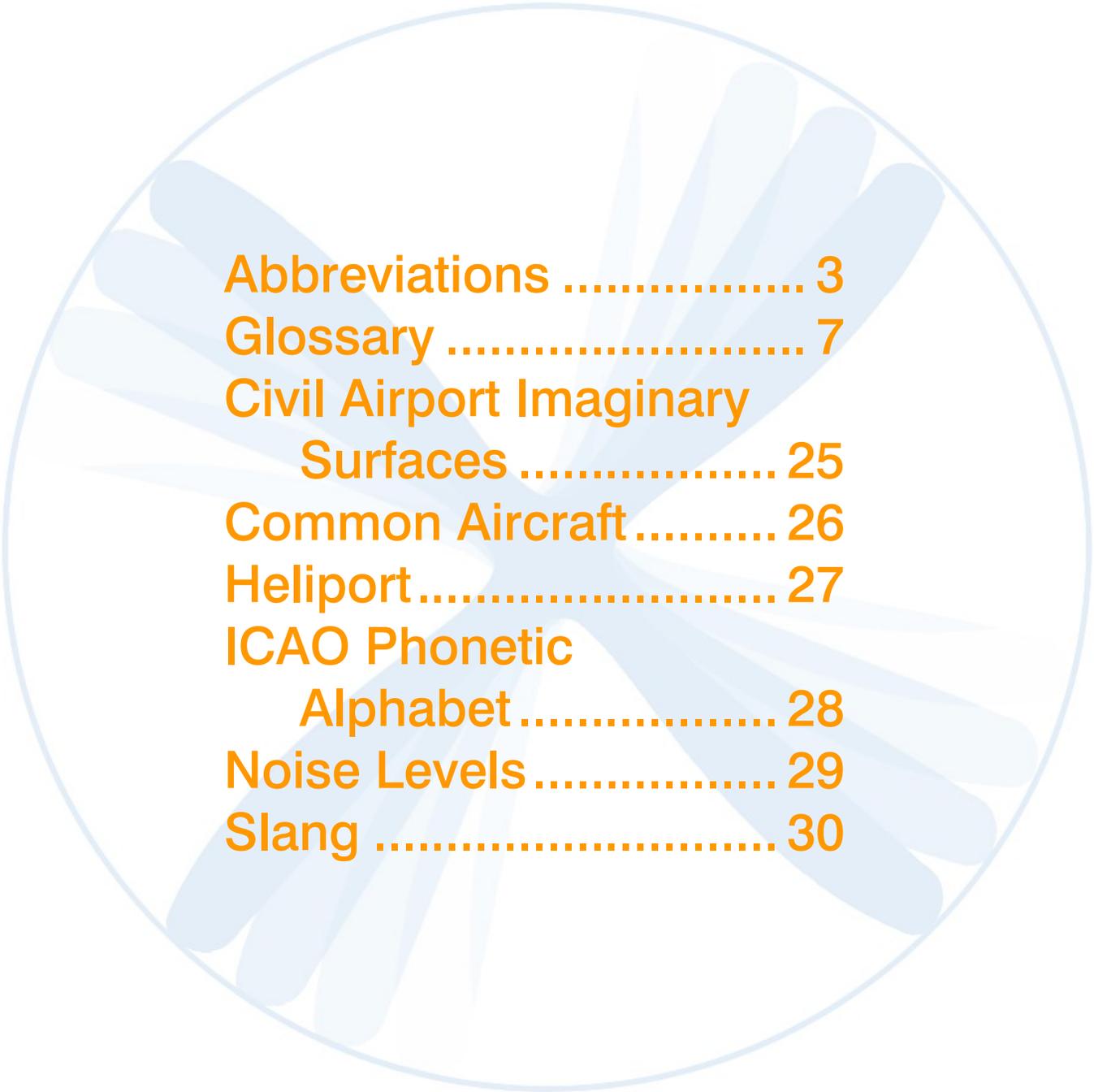
Aviation Planning Dictionary

A glossary of terms, abbreviations, acronyms and slang related to
aeronautics, aircraft, and airports

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A&P

Airframe & Powerplant
Mechanic

AC

Advisory Circular

AD

Airport Design

ADG

Airplane design group

AGIS

Airports Geographic
Information Systems

AGL

above ground level

AGLA

Alternative Grass Landing
Area

AIP

Airport Improvement Program

ALP

Airport Layout Plan

ALS

Airport Lighting System

ALSF

Approach Lighting System
with Sequenced Flashing Light

ARC

Airport Reference Code

ARFF

Air Rescue and Firefighting

ARP

Airport reference point

ASOS

Automated surface
observation station

ATC

Air Traffic Control

ATCT

Air Traffic Control Tower

AvGas

Aviation Gasoline

AWOS

Automated Weather
Observing System

BRL

building restriction line

CFR

Code of Federal Regulations

CIP

Capital Improvement Program

DME

Distance Measuring
Equipment

DNL

Day-Night Noise Level

EAA

Experimental Aircraft
Association

EL

Elevation

F

Fahrenheit

FAA

Federal Aviation
Administration

FAR

Federal Aviation Regulation

FBO

Fixed Base Operator

FOD

Foreign Object Debris

GA

General Aviation

GPS

Global Positioning System

GS

glide slope

HIRL

High Intensity Runway
Lighting

IAP

Instrument Approach
Procedure

IFR

Instrument Flight Rules

ILS

Instrument Landing System

LDA

landing distance available

LIRL

Low-intensity runway edge lighting

LITL

Low Intensity Taxiway Lighting

LOC

ILS Localizer

LORAN

Long range navigation

LSA

Light-Sport Aircraft

LTA

Lighter-than-air craft

MALS

Medium Intensity Approach Lighting

MALSF

Medium Intensity Approach Lighting with Sequenced Flashers

MALSR

Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

MIRL

Medium-Intensity Runway Lighting

MITL

Medium-Intensity Taxiway Lighting

MSL

mean sea level

MoGas

Motor gasoline (light aircraft fuel)

NAVAID

Navigational Aid

NDB

Nondirectional radio beacon

NM

nautical mile

NPA

Non-Precision Approach

NPIAS

National Plan of Integrated Airport Systems

ODALS

Omnidirectional Approach Lighting System

OFA

Object Free Area

OFZ

Obstacle Free Zone

OPV

Optionally Piloted Vehicle

P

Precision (Markings)

PA

Precision Approach

PAC

Planning/Project Advisory Committee

PAPI

Precision Approach Path Indicator

PCI

Pavement Condition Index

POFA

precision object free area

RCO

Remote communications outlet

RDG

runway design group

REIL

Runway End Identifier Lights

RNAV

Area Navigation

ROFA

Runway Object Free Area

RPZ

Runway Protection Zone

RSA

Runway Safety Area

RTR

Remote transmitter/receiver

RTTF

Residential Through-the-Fence

RVR

Runway visibility range

RVZ

Runway visibility zone

RW

Runway

SALS

Short approach lighting system

SASP

State Aviation System Plan

SEL

Sound exposure level

SID

Standard instrument departure

SM

Statute mile

STAR

Standard terminal arrival route

STC

Supplemental Type Certificate

SWG

Single Wheel Gear

SWY

Stopway

TACAN

Tactical air navigation

TAF

Terminal area forecast

TERPS

Federal Aviation Administration Standard for Terminal Instrument Procedures

TDG

Taxiway design group

TDZ

Touchdown zone

TH

Threshold

TL

Taxilane

TODA

Takeoff Distance Available

TORA

Takeoff Run Available

TSA

Taxiway Safety Area

TW

Taxiway

UAS

Urban Air Mobility

USDOT

United States Department of Transportation

USGS

United States Geological Survey

V

Visual (Markings)

VASI

Visual Approach Slope Indicator

VFR

Visual Flight Rules

VOR

Very High Frequency

Omnidirectional Range
Station

VORTAC

VOR and TACAN collocated

Acoustical Relating to the deadening or absorbing of sound.

Advisory Circular (AC) External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, and guidance and information relative to a specific aviation subject. A document published by the Federal Aviation Administration (FAA) giving guidance on aviation issues, and which becomes binding on those airports receiving federal grant funding.

Aeronautical Study A study performed pursuant to FAR Part 77 “Objects Affecting Navigable Airspace” concerning the effect of proposed construction or alternation on the use of air navigation facilities or navigable airspace by aircraft. The conclusion of each study is normally a determination as to whether the specific proposal studied would be a hazard to air navigation and/or a determination for marking and/or lighting.

air taxi An aircraft operated under an air taxi operating certificate for the purpose of carrying passengers, mail, or cargo for revenue in accordance with FAR Part 121 and FAR Part 135.

Air Traffic Control (ATC) Control of the airspace by an appropriate authority to promote the safe, orderly and expeditious movement of terminal air traffic.

aircraft Includes airplanes and helicopters, but not hot air balloons or ultralights. [see **Common Aircraft** graphic]

aircraft approach category An alphabetic classification of aircraft based upon 1.3 times the stall speed in a landing configuration at their maximum certified landing weight.

aircraft operation - The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport. An aircraft arrival or departure from an airport. There are two types of operations: local and itinerant.

Aircraft Rescue and Fire Fighting A facility located at an airport that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.

airfield The portion of an airport that contains the facilities necessary for the operation of aircraft.

airplane design group A Roman numerical classification of aircraft based upon wingspan.

airport 1) Any area of land or water, within or without this state, that is used, or intended for use, for the landing and take-off of aircraft, and any appurtenant areas that are used, or intended for use, for airport buildings or other airport facilities or rights of way, together with all airport buildings and facilities located thereon. 2) The strip of land used for taking off and landing aircraft, together with all adjacent land used in connection with the aircraft landing or taking off from the strip of land, including but not limited to land used for existing airport uses.

airport approach safety zone An element of either an Airport Impact Zone or an Airport Overlay Zone which consists of a portion of the Airport Approach surface as defined in FAR Part 77. The actual boundaries and land use provisions are determined by the local jurisdiction. [see **Civil Airport Imaginary Surfaces** graphic]

airport authority A quasi-governmental public organization responsible for setting the policies governing the management and

operation of an airport or system of airports under its jurisdiction.

airport development zone A zone which replaces the existing zoning for the airport property encompassing the land presently owned by the airport and, if feasible, areas identified for future purchase, clear zones and areas with noise levels greater than DNL 70.

airport direct impact area The area located within 5,000 feet of an airport runway, excluding lands within the runway protection zone and approach surface.

airport elevation The highest point on an airport's usable runway(s) expressed in feet above mean sea level.

airport environs The land use and people in the areas surrounding an airport which can be directly affected by the operation of the airport.

airport hazard Any structure or object of man-made or natural growth located on or near the airport, or any use of land near the airport that obstructs the airspace required for the flight of aircraft in landing or taking off, or is otherwise hazardous to such landing and taking off.

airport imaginary surfaces Imaginary areas in space and on the ground that are established in relation to the airport and its runways. Imaginary areas are defined by the primary surface, runway protection zone, approach surface, horizontal surface, conical surface and transitional surface. [see **Civil Airport Imaginary Surfaces** graphic]

airport impact zones A zone used to place land use conditions on land impacted by airport operations. It establishes a new zone and provisions which replaces an existing zone and standards.

Airport Improvement Program (AIP) The AIP is authorized by the Airport and Airway Improvement Act of 1982 (P.L. 97-248, as amended). The Act's broad objective is to assist in the development of a nationwide system of public-use airports adequate to meet the current and projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems. The Act also authorizes funds for noise compatibility planning and to carry out noise compatibility programs as set forth in the Aviation Safety and Noise Abatement Act of 1979 (P.L. 96-143).

Airport Layout Plan (ALP) A scaled drawing of existing and proposed airside and landside facilities necessary for the operation and development of the airport. The ALP shows (1) boundaries and proposed additions to areas owned or controlled by the sponsor, (2) the location and nature of existing and proposed airport facilities and structures and (3) the location on the airport of existing and proposed non-aviation areas and improvements. The ALP may also depict those properties adjacent to the airport ownership that may have legal access to the airport.

Airport Layout Plan Set This document typically contains a set of drawings which illustrate the existing and future development of the airport. An ALP set may often contain the following: (1) Airport Layout Drawing (Plan), (2) Airport Airspace Drawing, (3) Inner Portion of the Approach Surface Drawing, (4) Terminal Area Drawing, (5) Land Use Drawing and (6) Airport Property Map. The drawings depict existing and proposed airport facilities, land uses, approach zones and other defined areas of airspace, and environmental features that may influence airport usage and expansion capabilities.

airport manager The person authorized by the airport sponsor to exercise administrative control of the airport.

airport master plan Long-term development plan for the airport adopted by the airport proprietor and local jurisdictions.

Airport Noise Abatement Program A program designed to reduce noise around an airport through changes in the manner in which aircraft are flown, or changes in the operation or layout of the airport. (Compatible land use planning).

Airport Noise and Capacity Act of 1990 This act required the establishment of a National Noise Policy and a requirement to eliminate Stage 2 aircraft weighing 75,000 pounds or greater operating in the contiguous United States by the year 2000.

airport noise and impact boundary Areas located within 1,500 feet of an airport runway or within established noise contour boundaries exceeding 55Ldn [day-night average sound level].

airport obstruction chart A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads and other detail in the vicinity of an airport.

airport obstruction zoning ordinance A local height restriction ordinance which follows FAR Part 77, implements a local community's comprehensive plan and provides specific height standards for the area beneath the airport Imaginary Surface.

airport overlay zone A zone intended to place additional land use conditions on land

impacted by the airport while retaining the existing underlying zone.

airport owner Any person or authority having the operational control of an airport as defined in the ASNA Act. (See OAR 660-113)

Airport Reference Code (ARC) A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to use the airport. It is a two-character code consisting of the aircraft approach category and the airplane design group.

airport reference point The latitude and longitude of the geometric center of the runway system at an airport.

airport sponsor 1) The entity that is legally responsible for the management and operation of an airport including the fulfillment of the requirements of laws and regulations related thereto. 2) The airport owner or tax-supported organization such as an airport authority, that is authorized to own and operate, to obtain property interests, to obtain funds, and to legally, financially and otherwise able to meet all applicable requirements of current laws and regulations related to the operation of an airport. 3) The owner, manager, person or entity designated to represent the interests of an airport.

airport traffic control tower A facility in the terminal air traffic control system located at an airport which consists of a tower cab structure and an associated instrument flight rules room, if radar equipped, that uses ground-to-air and air-to-ground communications and radar, visual signaling, and other devices to provide for the safe and expeditious movement of terminal area air traffic in the airspace and airports within its jurisdiction.

Airports Capital Improvement Plan The planning program used by the Federal Aviation Administration to identify, prioritize and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

airside That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft, such as taxiway, runway, maintenance and fueling areas.

airspace Space above the ground in which aircraft travel. Often airspace is divided into corridors, routes and restricted zones.

ambient noise All-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

Amphibian A seaplane or floatplane with retractable wheels for use on land, as well

Annual Service Volume (ASV) The number of annual operations that can reasonably be expected to occur at the airport based on a given level of delay.

Approach and Runway Protection Zone Map The approach and Runway Protection Zone Map is compiled from the criteria in FAR Part 77, Objects Affecting Navigable Airspace. It shows the area affected by the Airport Obstructions Zoning Ordinance, and includes layout of runways, airport boundary, elevations and area topography. Applicable height limitation areas are shown in detail. [see **Civil Airport Imaginary Surfaces** graphic]

approach slopes The ratios of horizontal to vertical distance indicating the degree of inclination of the Approach Surface. [see **Civil Airport Imaginary Surfaces** graphic]

approach surface 1) An imaginary obstruction limiting surface defined in FAR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance based upon the type of available or planned approach by aircraft to a runway. 2) A surface defined by FAR Part 77 "Objects Affecting Navigable Airspace," that is longitudinally centered on the runway centerline and extends outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end. 3) A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. [see **Civil Airport Imaginary Surfaces** graphic]

apron A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

attainment area An area in which the federal or state standards for ambient air quality are being achieved.

attenuation The lessening of the magnitude.

average day-night sound level (DNL) Average day-night sound level (DNL) is the FAA standard metric for determining the cumulative exposure of individuals to noise. DNL is the equivalent of noise levels produced by aircraft operations during a 24-hour period, with a ten-decibel penalty applied to the level measured during nighttime hours (10:00 pm to 7:00 am).

average sound level The level in decibels, of the mean square, A-weighted sound pressure during a specified period, with reference to the

square of the standard reference sound pressure of 20 micropascals [μPa].

avigation easement 1) A contractual right or a property interest in land over which a right of unobstructed flight in the airspace is established. 2) A grant of a property interest in land over which a right of unobstructed flight in the airspace is established and which prohibits any structures, growth or other obstructions from penetrating the approach surface and provides a right of entry to remove, mark or light any structure or any such obstruction.

A-weighted sound level (also referred to as dBA) The sound pressure level which has been filtered or weighted to reduce the influence of the low and high frequency noise; designed to approximate the manner in which the human ear responds to sounds.

based aircraft 1) The general aviation aircraft that use a specific airport as a home base. 2) An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

benefit cost analysis (BCA) An analysis of the benefit, cost, and uncertainty associated with a project or action. A formal BCA is required for capacity projects of \$10 million or more in AIP discretionary funds.

building codes Codes, either local or state, that control the functional and structural aspects of buildings and/or structures. Local ordinances typically require proposed buildings to comply with zoning requirements before building permits can be issued under the building codes.

building restriction line A line defined by specifications and displayed on an airport layout plan beyond which airport buildings

must not be located to limit building proximity to aircraft movement areas.

capital improvement plan The individual airport sponsor's plan for the capital needs of the airport, typically including their planned capital funding sources. This is separate and distinct from the FAA's Airports Capital Improvement Plan (ACIP), which is the FAA's plan for how to allocate AIP funds.

cargo service airport an airport served by aircraft providing air transportation of property only, including mail, with an annual aggregate landed weight of at least 100,000,000 pounds.

Certificated Airport An airport operating under FAR Part 139. The FAA issues airport operating certificates to all airports serving scheduled or unscheduled air carrier aircraft designed for more than 30 passenger seats. Certificated airports must meet minimum safety standards in accordance with FAR Part 139.

Citizen's Advisory Committee (CAC) A group of individuals that weigh recommendations against community goals, values, and needs.

commercial service airport 1) A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers. 2) A public airport that has at least 2,500 passenger boardings each year and is receiving scheduled passenger aircraft service.

commuter An air carrier operator operating under 14 CFR 135 that carries passengers on at least five round trips per week on at least one route between two or more points according to its published flight schedules that specify the times, day of the week, and places between which these flights are performed. The aircraft that a commuter operates has 30 or fewer

passenger seats and a payload capability of 7,500# or less.

compatibility The degree to which land uses or types of development can coexist or integrate.

compatible land use As defined in FAR 150: The use of land (e.g. commercial, industrial, agricultural) that is normally compatible with aircraft and airport operations, or sound insulated land uses (e.g. sound insulated homes, schools, nursing homes, hospitals, libraries) that would otherwise be considered incompatible with aircraft and airports operations.

Comprehensive Plan Similar to a Master Plan, the comprehensive plan is a governmental entity's official statement of its plans and policies for long-term development. The plan includes maps, graphics and written proposals, which indicate the general location for streets, parks, schools, public buildings, airports and other physical development of the jurisdiction.

computer aided design (CAD) Software that is common used for drafting architectural and engineering drawings.

conditional zoning The imposition or exaction of conditions or promises upon the grant of zoning by the zoning authority.

conformity (Air Quality) No department, agency or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license, or permit, or approve, any activity which does not conform to a State Implementation Plan (SIP). There are two types of Air Quality Conformity: General Conformity and Transportation Conformity

conical surface A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet. [see **Civil Airport Imaginary Surfaces** graphic]

critical (design) aircraft The most demanding aircraft with at least 500 annual operations that operates, or is expected to operate, at the airport.

crosswind A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

crosswind component The component of wind that is not parallel to the runway centerline or the intended flight path of an aircraft.

decibel (dB) A unit for describing the intensity or level of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a standard reference pressure.

dirigible A lighter-than-air craft capable of being propelled and steered for controlled flight.

discretionary funds Federal grant funds that may be awarded to an airport based upon designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety or security, or mitigating noise.

displaced threshold An aircraft runway landing area that begins at a point on the runway other than the designated physical end of the runway.

easement A grant of one or more of the property rights by the property owner to and/or for the use by the public, a corporation or another person or entity.

empennage An aircraft's tail group, includes rudder and fin, and stabilizer and elevator.

enplanement The boarding of a passenger, cargo, freight or mail on an aircraft at an airport.

entitlement Federal funds for which a commercial service airport may be eligible based upon its annual passenger enplanements.

Environmental Assessment (EA) 1) An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement. 2) A concise document that assesses the environmental impacts of a proposed federal action. The EA discusses the need for and environmental impacts of the proposed action and alternative actions. An EA should provide sufficient evidence and analysis for a federal determination whether to prepare an **Environmental Impact Statement** or a **Finding of No Significant Impact**.

Environmental Impact Statement (EIS) 1) A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive and negative effects of a proposed action and citing alternative actions. 2) A document that provides full and fair discussion of the significant environmental impacts that would occur as a result of a proposed project and informs decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts.

Euclidean Zoning A traditional legislative method or device for controlling land use by establishing districts with boundaries and

providing for specific uniform regulations as to type of permitted land use, height, bulk and lot coverage of structure, setback and similar building restrictions. (Reference from 1929 U.S. Supreme Court landmark decision upholding zoning as a means of land use control in "City of Euclid, Ohio v. Ambler Realty:")

FAA's Technical Representative As used in this ordinance, the federal agency providing the FAA with expertise on wildlife and bird strike hazards as they relate to airports. This may include, but is not limited to, the United States Department of Agriculture - Animal and Plant Health Inspection Service - Wildlife Service (USDA-APHIS-WS).

Federal Aviation Administration (FAA) A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control and air navigation and promoting the development of a national system of airports.

Federal Aviation Regulations (FAR) 1) The general and permanent rules established by the executive departments and agencies of the Federal Government for aviation, which are published in the Federal Register. These are the aviation subset of the Code of Federal Regulations. 2) Regulations established and administered by the FAA that govern civil aviation and aviation-related activities.

Federal Grant Assurance The terms and conditions of accepting Airport Improvement Program (AIP) grants from the Federal Aviation Administration for carrying out the provisions of Title 49 United State Code. The terms and conditions become applicable when the airport sponsor accepts a grant offer from the FAA.

ferry flight A flight for the purpose of (1) returning an aircraft to base; (2) delivering an aircraft from one location to another; (3) moving an aircraft to and from a maintenance base. Ferry flights, under certain conditions, may be conducted under terms in a special flight permit.

Finding of No Significant Impact (FONSI) A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

fixed base operator (FBO) A business enterprise located at an airport that provides services to pilots including aircraft rental, training, fueling, maintenance, parking, and the sale of pilot supplies.

floatplane A water-based aircraft with one or more mounted pontoons, as differentiated from a hulled **seaplane** [Flying Boat], but often used generically.

general aviation (GA) 1) The segment of aviation that encompasses all aspects of civil aviation except certified air carriers and other commercial operators such as airfreight carriers. 2) Refers to all civil aircraft and operations that are not classified as air carrier, commuter or regional. The types of aircraft used in general aviation activities cover a wide spectrum from corporate multi-engine jet aircraft piloted by professional crews to amateur-built single engine piston acrobatic planes, balloons and dirigibles.

general conformity All federal actions (except those involving highways and transit projects) within non-attainment and maintenance areas that result in a net increase in emissions above specified levels.

geographic information system (GIS) a GIS is a computer system capable of capturing, storing, analyzing, and displaying geographically referenced information according to location. It is a technology that manages, analyzes, and disseminates geographic data.

glider An unpowered aircraft capable of maintaining altitude only briefly after release from tow, then gliding to earth. [see **sailplane**].

global positioning system (GPS) A satellite based navigational system that provides signals in the cockpit of aircraft defining aircraft position in terms of latitude, longitude and altitude.

ground access The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicles for passengers, employees, cargo, freight, and airport services.

gyroplane A rotorcraft whose rotors are not engine-driven, except for initial starting, but are made to rotate by action of the air when the rotorcraft is moving and whose means of propulsion, usually a conventional propeller, is independent of the rotor system. Similar to **autogyro**.

hangar An enclosed structure for housing aircraft. Originated with lake-based floating homes of the original German Zeppelins in which they were "hung" from cables, which explains the erroneous, oft-seen spelling of "hanger."

hazard to air navigation An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

height The highest point of a structure or tree, plant or other object of natural growth, measured from mean sea level.

helipad A designated area for the takeoff, landing and parking of helicopters. [see **Heliport** graphic]

Heliport An airport or landing place for helicopters. [see **Heliport** graphic]

Hold Harmless Agreement An agreement which holds airport sponsors or jurisdictions harmless for alleged damages resulting from airport operations. Such agreements are recorded in deeds or permits as a condition of approval of a regulatory land use decision.

horizontal surface 1) An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are a function of the types of approaches existing or planned for the runway. 2) A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

- (A) 5,000 feet for all runways designated as utility.
- (B) 10,000 feet for all other runways.
- (C) The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the

horizontal surface. [see **Civil Airport Imaginary Surfaces** graphic]

hubbing A method of airline scheduling that times the arrival and departure of several aircraft in a close time period to allow the transfer of passengers between different flights of the same airline. Several airlines may conduct hubbing operations at an airport.

imaginary surfaces Those areas established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces, by definition, is an obstruction. [see **Civil Airport Imaginary Surfaces** graphic]

incompatible land use The use of land, which is defined in Appendix A, Table 1 of FAR Part 150, which is normally incompatible with the aircraft and airport operations (such as homes, schools, nursing homes, hospitals and libraries).

infrastructure A community's built elements that establish the community's foundation for maintaining existing populations, activities, future growth and development. Infrastructure elements include airports, roads and highways, bridges, water and sewer systems, waste disposal facilities, utilities and telecommunications systems, schools, and governmental and community facilities.

instrument approach A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR) 1) Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often also used to define weather conditions and the type of flight plan

under which an aircraft is operating. 2) Rules by which aircraft are operated without visual reference to the ground; in effect when cloud ceilings are equal to or less than 1,000 feet, or visibility is less than 3 miles.

Instrument Landing System (ILS) The instrument landing system is designed to provide electronic instrument guidance to the pilot to permit exact alignment and angle of descent of a properly equipped aircraft on final approach for landing.

instrument meteorological conditions Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

Integrated Noise Model (INM) FAA's computer model used by the civilian aviation community for evaluating aircraft noise impacts near airports. The INM uses a standard database of aircraft characteristics and applies them to an airport's average operational day to produce noise contours.

itinerant operation 1) Operation by aircraft that leaves the local airspace. 2) Any aircraft arrival and/or departure other than a local operation.

land banking The purchase of property by the government to be held for future use and development either by the government or for resale for the development of compatible uses.

land use compatibility The coexistence of land uses surrounding the airport with airport-related activities.

land use controls Measures established by state or local government that are designed to carry out land use planning. The controls include among other measures: zoning, subdivision regulations, planned acquisition,

easements, covenants or conditions in building codes and capital improvement programs, such as establishment of sewer, water, utilities or their service facilities.

land use management measures Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that emend or update the local zoning ordinance, comprehensive plan, subdivision regulations and building code.

landside 1) The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles. 2) That part of an airport used for activities other than the movement of aircraft, such as vehicular access roads and parking.

light sport aircraft Special FAA certification class (LSA) for an aircraft other than a helicopter or powered-lift—single-engine aircraft, airship, balloon, glider, gyrocopter, rotorcraft, weight-shift-control aircraft. While limiting the types of aircraft that could be flown by a Sport Pilot, it simplified requirements for obtaining a pilot license and did not require a medical examination.

lighting and marking of hazards to air navigation Installation of appropriate lighting fixtures, painted markings or other devices to such objects or structures that constitute hazards to air navigation.

Limited Avigation Easement An easement which provides right of flight above approach slope surfaces, prohibits any obstruction penetrating the approach slope surface, and provides right of entry to remove any structure or growth penetrating the approach slope surface.

local operation 1) Aircraft operation performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport. 2) Any operation performed by an aircraft that (a) operates in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

maintenance area a geographical area which was once designated as nonattainment, but the pollution levels have met the National Ambient Air Quality standards for two consecutive years and has an approved maintenance plan which outlines how the geographical area will continue to meet these standards.

mediation The use of a mediator or co-mediators to facilitate open discussion between disputants and assist them to negotiate a mutually agreeable resolution. Mediation is a method of alternative dispute resolution that provides an initial forum to informally settle disputes prior to regulatory intervention on the part of the FAA.

military operation Aircraft operation that is performed in military aircraft.

mitigation The avoidance, minimization, reduction, elimination or compensation for adverse environmental effects of a proposed action.

mitigation measure An action taken to alleviate adverse impacts.

National Airspace System (NAS) The network of air traffic control facilities, air traffic control areas, and navigational facilities throughout the U.S.

National Environmental Policy Act of 1969 (NEPA) 1) Federal legislation that establishes environmental policy for the nation. It requires an interdisciplinary framework for federal agencies to evaluate and disclose environmental impacts and contains procedures to ensure that federal agency decision makers take environmental factors into account. 2) The original legislation establishing the environmental review process.

National Plan of Integrated Airport Systems (NPIAS) 1) The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs. 2) A primary purpose of the NPIAS is to identify the airports that are important to national transportation and, therefore, eligible to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected general aviation airports.

Nautical Mile (knot) A measure of distance equal to one minute of arc on the earth's surface, which is approximately 6,080 feet.

Navigation Aid (NAVAID) 1) A facility used as, available for use as, or designed for use as an aid to air navigation. 2) Any facility used by an aircraft for guiding or controlling flight in the air or the landing or take-off of an aircraft.

noise Defined subjectively as unwanted sound, the measurement of noise evaluates three characteristics of sound: intensity, frequency and duration. [see [Noise Levels graphic](#)]

noise abatement procedures Changes in runway usage, flight approach and departure routes and procedures, and vehicle movement, such as ground maneuvers or other air traffic procedures that shift aviation impacts away from noise sensitive areas.

Noise Compatibility Plan (NCP) The NCP consists of an optimum combination of preferred noise abatement and land use management measures, and a plan for implementation of the measures. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.

noise exposure contours Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.

Noise Exposure Map (NEM) The NEM is a scaled map of the airport, its noise contours and surrounding land uses. The NEM depicts the levels of noise exposure around the airport, both for the existing conditions and forecasts for the five-year planning period. The area of noise exposure is designated using the DNL (Day-Night Average Sound Level) noise metric.

noise impact A condition that exists when the noise levels that occur in an area exceed a level identified as appropriate for the activities in that area.

Noise Level Reduction (NLR) The amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noise-Sensitive Area Areas where aircraft noise may interfere with existing or planned use of the land. Whether noise interferes with

a particular use depends upon the level of noise exposure and the types of activities that are involved. Residential neighborhoods, educational, health, and religious structures and sites, outdoor recreational, cultural and historic sites may be noise sensitive areas.

non-conforming use Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.

non-precision instrument runway 1) A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach has been approved, or planned, and for which no precision approach facilities are planned or indicated on an FAA-approved airport layout plan or other FAA planning document. A runway having an existing or planned instrument approach that is essentially aligned with the runway centerline and has horizontal information for guidance of the aircraft on course and relays altimeter and intermediate fixes for descent to the touchdown point on the runway.

obstruction Any structure, growth, or other object of natural growth that penetrates an imaginary surface. [see **Civil Airport Imaginary Surfaces** graphic]

off-airport property Property that is beyond the boundary of land owned by the airport sponsor.

Official Map A legally adopted map that conclusively shows the locations and width of proposed streets, public facilities, public areas and drainage rights-of-way.

on-airport property Property that is within the boundary of land owned by the airport sponsor.

operation The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

Other than Utility Runway A runway that is constructed for and intended to be used by turbine driven aircraft or by propeller-driven aircraft exceeding 12,500 pounds gross weight.

overlay zone A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

overshoot To land beyond a runway or planned spot. [see **undershoot**]

Part 150 Study Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See “Noise Compatibility Plan.”

Passenger Facility Charge (PFC) Program 1) The collection of PFC fees for every enplaned passenger at commercial airports controlled by public agencies to be used to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition. 2) The PFC Program, first authorized by the Aviation Safety and Capacity Expansion Act of 1990 and now codified under Section 40117 of Title 49 U.S.C., provides a source of additional capital to improve, expand and repair the nation’s airport infrastructure. The legislation allows public agencies controlling commercial service airports to charge enplaning passengers using the airport a facility charge. The FAA must

approve any facility charges imposed on enplaning passengers.

pattern The path of aircraft traffic around an airfield, at an established height and direction. At tower-controlled fields the pattern is supervised by radio (or, in non-radio or emergency conditions by red and green light signals) by air traffic controllers.

peak hour (PH) An estimate of the busiest hour in a day. This is also known as the design hour.

performance standards Minimum acceptable levels of performance, imposed by zoning that must be met by each land use.

phonetic alphabet The International Civil Aviation Organization created the International Radiotelephony Spelling Alphabet, tied to the English alphabet, to ensure that letters are properly pronounced and understood by air traffic controllers and pilots around the world, despite what languages are spoken. [see **ICAO Phonetic Alphabet** graphic]

planning activity level (PAL) Selected activity levels that may trigger the need for additional facilities or improvements.

Planning Advisory Committee (PAC) A group of individuals that provide input on the airport master plan or other planning program.

precision instrument runway 1) A runway having an existing instrument approach procedure utilizing air navigation facilities that provide both horizontal and vertical guidance, such as an Instrument Landing System (ILS) or Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan or other FAA planning document. 2) A runway having

an existing or planned instrument approach that is essential aligned with the runway centerline and has horizontal information for guidance of the descent of the aircraft to the touchdown point of the runway.

primary airport A commercial service airport that enplanes at least 10,000 annual passengers.

primary runway The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.

primary surface 1) An imaginary obstruction limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway. 2) A primary surface is longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface terminates at each end of the runway. The width of a primary surface ranges from 250 feet to 1,000 feet, depending on the existing or planned approach system. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. 3) A surface longitudinally centered on a runway. When a runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When a runway has not specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

(A) 500 feet for utility runways having non-precision instrument approaches, (B) 500 feet for other than utility runways having non-precision instrument approaches with visibility minimums greater than three-fourths statute mile, and (C) 1,000 feet for non-precision instrument runways with visibility minimums at or below three-fourths statute mile, and for precision instrument runways. [see **Civil Airport Imaginary Surfaces** graphic]

proponent Any person who proposes to erect or construct any object or structure that exceeds certain minimum altitudes that may be a potential hazard to air navigation and who may be responsible for lighting and marking such object or structure.

public assembly facility A permanent or temporary structure or facility, place or activity where concentrations of people gather in reasonably close quarters for purposes such as deliberation, education, worship, shopping, employment, entertainment, recreation, sporting events, or similar activities. Public assembly facilities include, but are not limited to, schools, churches, conference or convention facilities, employment and shopping centers, arenas, athletic fields, stadiums, clubhouses, museums, and similar facilities and places, but do not include parks, golf courses or similar facilities unless used in a manner where people are concentrated in reasonably close quarters. Public assembly facilities also do not include air shows, structures or uses approved by the FAA in an adopted airport master plan, or places where people congregate for short periods of time such as parking lots or bus stops.

public use airport A publicly or privately-owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance.

Record of Decision (ROD) A public document that reflects the FAA's final decision, rationale behind that decision, and commitments to enforce and monitor mitigation.

regression analysis A statistical technique that seeks to identify and quantify the relationships between factors associated with a forecast.

reliever airport 1) General aviation airports in major metropolitan areas that provide pilots with attractive alternatives to using congested hub airports. 2) An airport that meets certain FAA criteria and relieves the aeronautical demand on a busier air carrier airport.

residential through-the-fence (RTTF) agreement Residential through-the-fence (RTTF) agreements allow people who own residential property with aircraft storage facilities near an airport to access the airport from off-airport property.

rotorcraft A heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors. Includes helicopters and gyroplanes.

runway 1) A defined rectangular area at an airport designated for the landing and taking-off of an aircraft. 2) A defined area on the airport prepared for landing and takeoff of aircraft along its length.

runway gradient The ratio of the change in elevation divided by the length of the runway expressed as a percentage.

runway protection zone 1) A trapezoidal-shaped area centered about the extended runway centerline that is used to enhance the protection of people and property on the ground. It begins 200 feet beyond the end of the runway or area usable for takeoff or

landing. The RPZ dimensions are functions of the design aircraft, type of operation and visibility minimums. 2) An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The RPZ extends from each end of the primary surface for a horizontal distance of:

(A) 1,000 feet for utility runways.

(B) 1,700 feet for other than utility runways having non-precision instrument approaches.

(C) 2,500 feet for precision instrument runways. [see **Civil Airport Imaginary Surfaces** graphic]

sailplane An unpowered, soaring aircraft capable of maintaining level flight for long periods of time after release from tow and of gaining altitude using wind currents, as opposed to a glider.

scope The document that identifies and defines the tasks, emphasis and level of effort associated with a project or study.

seaplane A water-based aircraft with a boat-hull fuselage, often amphibious. The term is also used generically to define a similar Flying Boat and a pontoon floatplane.

significant As it relates to bird strike hazards, "significant" means a level of increased flight activity by birds across an approach surface or runway that is more than incidental or occasional, considering the existing ambient level of flight activity by birds in the vicinity.

sound attenuation Acoustical phenomenon whereby a reduction of sound energy is

experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, constructed features (e.g., sound insulation) and natural features.

Sound Exposure Level (SEL) A measure of the physical energy of the noise event that takes into account both intensity and duration. By definition SEL values are referenced to a duration of one second. SEL is higher than the average and the maximum noise levels as long as the event is longer than one second. Sound exposure level is expressed in decibels (dB). People do not hear SEL.

Sound Transmission Class (STC) A number rating of the sound that indicates the amount of noise attenuation in tested acoustical materials.

special exceptions Land uses that are not specifically permitted as a matter of right, but can be permitted in accordance with performance standards and other local criteria. Also known as “conditional uses.”

Stage 2 Aircraft Aircraft that meet the noise levels prescribed by FAR Part 36 and are less stringent than noise levels established for the quieter designation State 3 aircraft. The Airport Noise and Capacity Act requires the phase-out of all State 2 aircraft by December 31, 1999, with case-by-case exceptions through the year 2003.

Stage 3 Aircraft Aircraft that meet the most stringent noise levels set forth in FAR Part 36.

State Implementation Plan (SIP) A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State Implementation Plans are collections of the regulations used by a state to reduce air pollution.

statute mile A measure of distance equal to 5,280 feet.

structure Any constructed or erected object which requires location on the ground or is attached to something located on the ground. Structures include but are not limited to buildings, decks, fences, signs, towers, cranes, flagpoles, antennas, smokestacks, earth formations and overhead transmission lines. Structures do not include paved areas.

supplemental type certificate (STC) A supplemental type certificate (STC) is a type certificate (TC) issued when an applicant has received FAA approval to modify an aeronautical product from its original design.

System of Airports Reporting (SOAR) The FAA Office of Airports integrated database that contains airport planning, development, and financial information.

Technical Advisory Committee A group of individuals that provide input on technical issues. (also **Citizens Advisory Committee** and **Planning Advisory Committee**)

terminal area A general term used to describe airspace in which airport traffic control or approach control service is provided.

Terminal Area Forecast (TAF) The official forecast of aviation activity, both aircraft and enplanements, at FAA facilities. This includes FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports.

Terminal Instrument Procedures Published flight procedures for conducting instrument approaches to runways under instrument meteorological conditions.

transient operations Operations by aircraft that are not based at a specified airport.

Transfer of Development Rights (TDR) The removal of the right to develop or build, expressed in dwelling units per acre, from land in one location to land in another location where such transfer is permitted.

transitional surface 1) An imaginary obstruction-limiting surface defined in FAR Part 77 that extends outward and upward at right angles to the runway centerline and runway centerline extended at a slope of 7 to 1 from the sides of the primary and approach surfaces. 2) An element of the Imaginary Surfaces extending outward and upward at right angles to the runway centerline and runway centerline extended at a slope of 7:1 from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. 3) Those surfaces that extend upward and outward at 90-degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces. Transitional surfaces for those portions of the precision approach surfaces which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at a 90-degree angle to the extended runway centerline. [see **Civil Airport Imaginary Surfaces** graphic]

transportation conformity Federally funded or approved highway or transit projects; (and regionally significant non-federal highway and transit projects) within non-attainment and maintenance areas.

turbojet aircraft Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) being used

both to rotate the turbine and to create a thrust-producing jet.

turboprop aircraft Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

ultralight An aeronautical vehicle, operated for sport or recreational purposes, that does not require FAA registration, an airworthiness certificate, or pilot certification. Primarily single-occupant vehicles, although some two-place vehicles are authorized for training purposes. Operation of an ultralight vehicle in certain airspaces requires authorization from ATC.

uncontrolled airport An airport without an air traffic control tower at which the control of Visual Flight Rules traffic is not exercised.

undershoot To land short of a runway or planned landing spot. [see **overshoot**]

urbanized land Lands within the urban growth boundary which are: (a) determined to be necessary and suitable for future urban areas; (b) served by urban services and facilities; and (c) needed for the expansion of an urban area.

utility runway A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight or less.

variance An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on

the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

visual approach An approach to an airport conducted with visual reference to the terrain.

visual approach runway A runway intended for visual approaches only, with no straight-in instrument approach procedure either existing or planned for that runway.

visual flight rules (VFR) 1) Procedures for the conduct of flight in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often also used to define weather conditions and the type of flight plan under which an aircraft is operating. 2) FAA rules that govern procedures for flight under visual conditions.

visual meteorological conditions

Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for instrument meteorological conditions.

visual runway A runway intended solely for the operation of aircraft using visual approach procedures, where no straight-in instrument approach procedures or instrument designations have been approved or planned, or area indicated on an FAA-approved airport layout plan or any other FAA planning document.

water impoundment Includes wastewater treatment settling ponds, surface mining ponds, detention and retention ponds, artificial lakes and ponds, and similar water features. A new water impoundment includes an expansion of an existing water impoundment except where such expansion was previously authorized by land use action

approved prior to the effective date of this ordinance.

wetland mitigation banking involves consolidating fragmented wetland mitigation projects into one large contiguous site. Unites of restored, created enhanced or preserved wetlands are expressed as “credits” which may be withdrawn to offset “debits” incurred at a project development site.

Wide Area Augmentation System An enhancement of the Global Positioning System that includes integrity broadcasts, differential corrections, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

yearly day-night average sound level (YDNL or Ldn) The 365-day average, in decibels, day-night average sound level.

zoning The partitioning of land parcels in a community by ordinance into zones and the establishment of regulations in the ordinance to govern the land use and the location, height, use and land coverages of buildings within each zone. The zoning ordinance usually consists of text and zoning map.

zoning ordinance Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

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Civil Airport Imaginary Surfaces

FEDERAL AVIATION REGULATION 77.25 [excerpts]

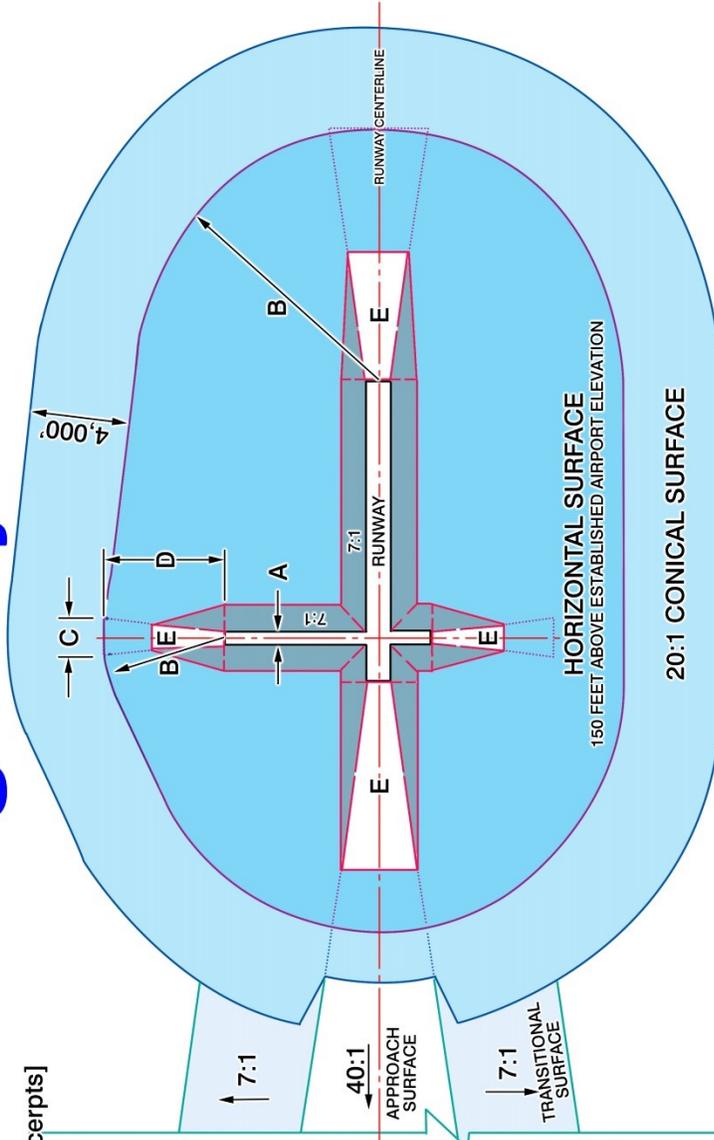
PRIMARY SURFACE
A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 300 feet beyond each end of the runway, beyond which it is a specially prepared hard surface or planned hard surface, the primary surface ends at each end of that runway.

HORIZONTAL SURFACE
A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 4,000 feet from the centerline of the runway and the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to these arcs.

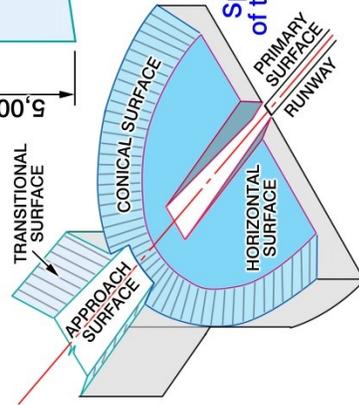
CONICAL SURFACE
A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

APPROACH SURFACE
A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the runway and the primary surface of the approach available or planned for that runway end.

TRANSITIONAL SURFACE
These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the primary surface and from the sides of the approach surfaces.



DIM	ITEM	DIMENSIONAL STANDARDS (Feet)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY		PRECISION INSTRUMENT RUNWAY	
		A	B	A	B	C	D
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	10,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	10,000
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*



Spatial Representation of the Imaginary Surfaces

This infographic is for reference only. For more specific descriptions and current "Objections Regarding Navigable Airspace," see FAR Part 77.

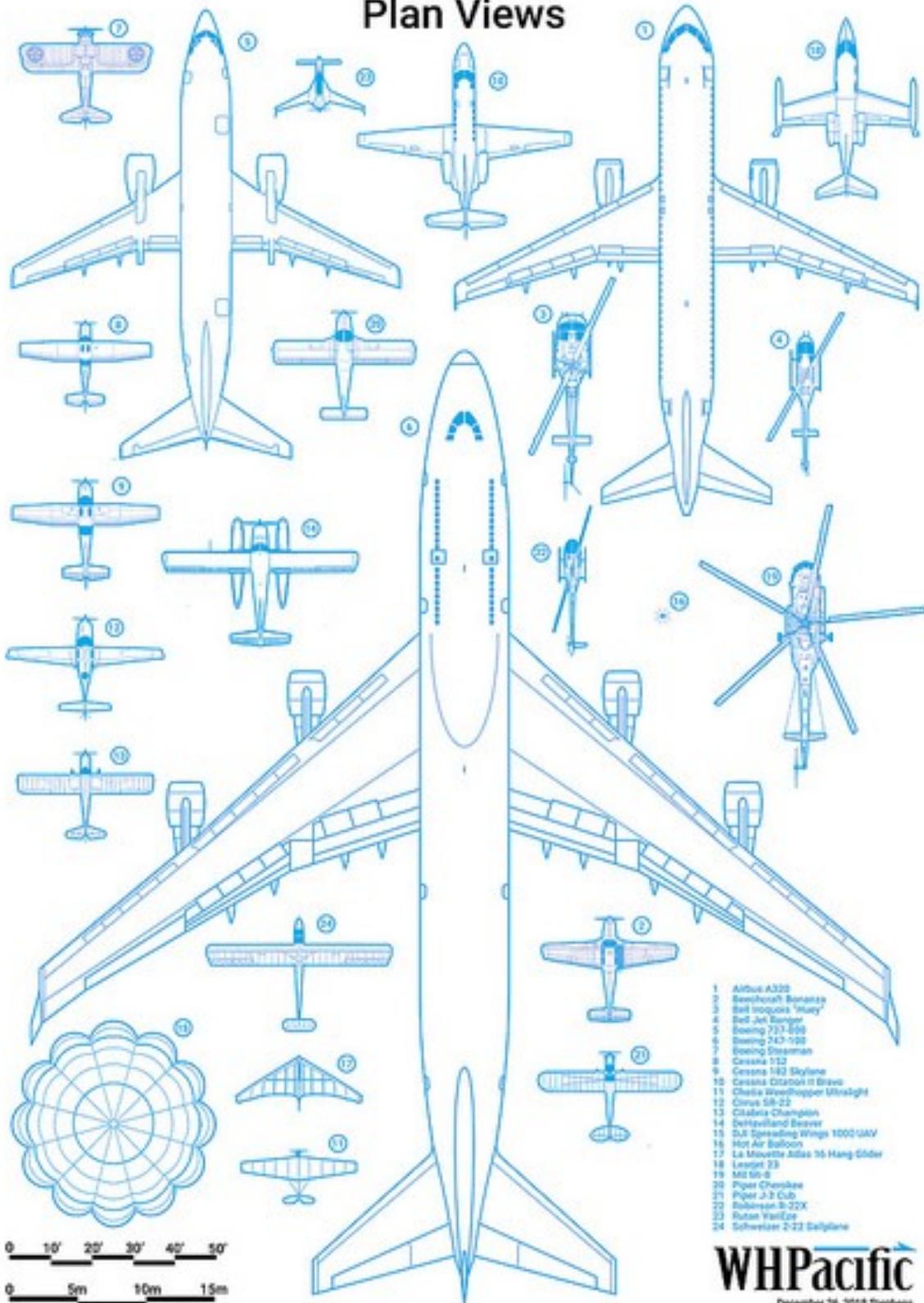


Stephens
Planning & Design

22 May 2011

Common Aircraft

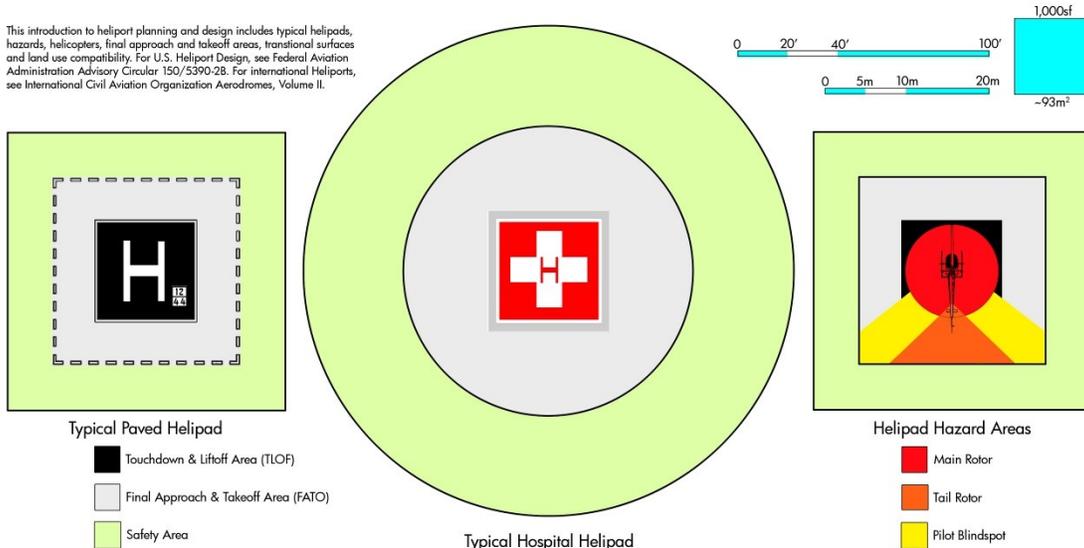
Plan Views



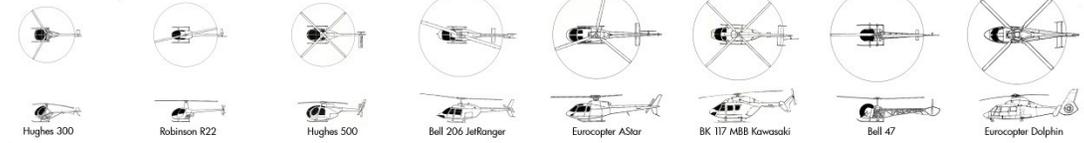
Heliport

Planning & Design

This introduction to heliport planning and design includes typical helipads, hazards, helicopters, final approach and takeoff areas, transitional surfaces and land use compatibility. For U.S. Heliport Design, see Federal Aviation Administration Advisory Circular 150/5390-28. For international Heliports, see International Civil Aviation Organization Aerodromes, Volume II.

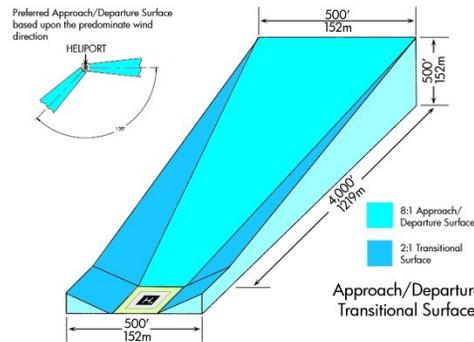
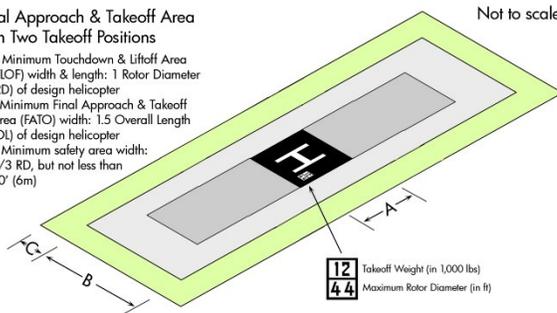


Common Helicopters



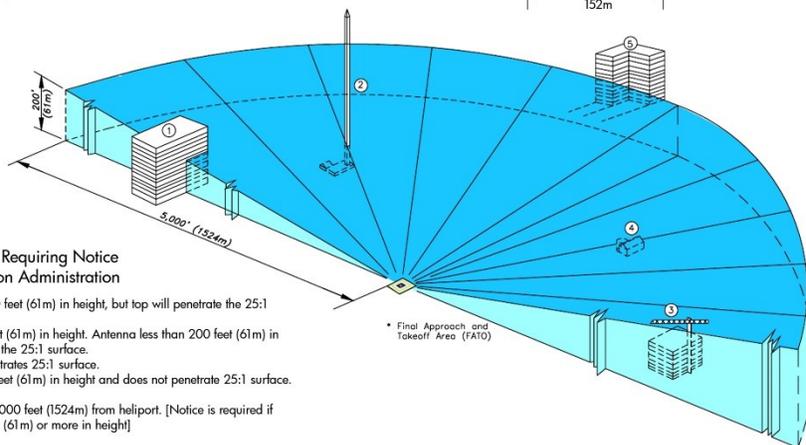
Final Approach & Takeoff Area with Two Takeoff Positions

A = Minimum Touchdown & Liftoff Area (TLOF) width & length: 1 Rotor Diameter (RD) of design helicopter
 B = Minimum Final Approach & Takeoff Area (FATO) width: 1.5 Overall Length (OL) of design helicopter
 C = Minimum safety area width: 1/3 RD, but not less than 20' (6m)



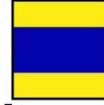
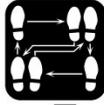
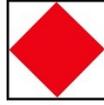
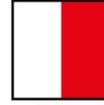
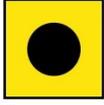
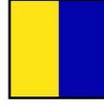
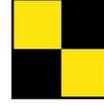
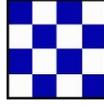
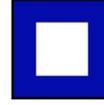
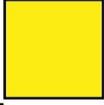
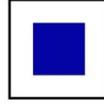
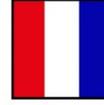
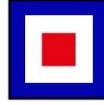
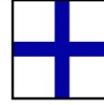
Offsite Development Requiring Notice to the Federal Aviation Administration

- Building is less than 200 feet (61m) in height, but top will penetrate the 25:1 surface.
- Antenna is over 200 feet (61m) in height. Antenna less than 200 feet (61m) in height, which penetrates the 25:1 surface.
- Construction crane penetrates 25:1 surface.
- Building less than 200 feet (61m) in height and does not penetrate 25:1 surface. [Notice is not required]
- Building is more than 5,000 feet (1524m) from heliport. [Notice is required if building will be 200 feet (61m) or more in height]



ICAO Phonetic Alphabet

with Mnemonic Icons , Signal Flags and Meanings

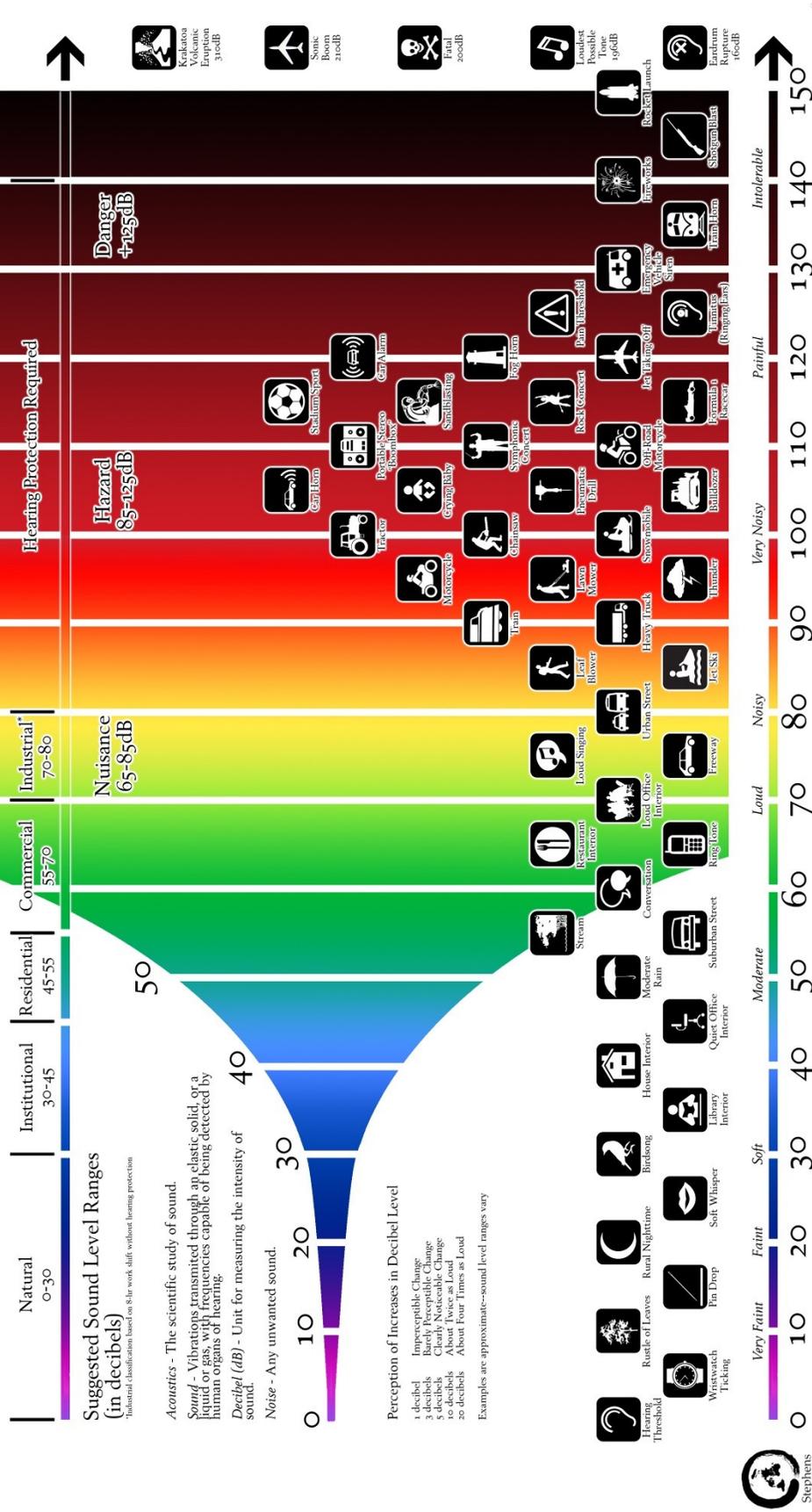
  <p>Alfa I have a diver down</p>	  <p>Bravo I am taking in, discharging or carrying dangerous goods</p>	  <p>Charlie Affirmative</p>	  <p>Delta Keep clear of me; I am maneuvering with difficulty</p>
  <p>Echo I am altering my course to starboard</p>	  <p>Foxtrot I am disabled; communicate with me</p>	  <p>Golf I require a pilot</p>	  <p>Hotel I have a pilot on board</p>
  <p>India I altering my course to port</p>	  <p>Juliett I am on fire or leaking dangerous cargo; keep well clear of me</p>	  <p>Kilo I wish to communicate with you</p>	  <p>Lima Quarantine (in harbor); You should stop instantly (at sea)</p>
  <p>Mike My vessel is stopped</p>	  <p>November Negative</p>	  <p>Oscar Man overboard</p>	  <p>Papa All persons shall report on board; the vessel is about to depart</p>
  <p>Quebec My vessel is healthy and I request free pratique</p>	  <p>Romeo The way is off my ship</p>	  <p>Sierra I am operating astern propulsion</p>	  <p>Tango Keep clear of me; I am engaged in pair trawling</p>
  <p>Uniform You are running into danger</p>	  <p>Victor I require assistance</p>	  <p>Whiskey I require medical assistance</p>	  <p>Xray Stop carrying out your intentions and watch for my signals</p>
  <p>Yankee I am dragging my anchor</p>	  <p>Zulu I require a tug</p>	 <p>Mayday Emergency / Help</p>	 <p>S.O.S. Distress signal</p>

This infographic combines the International Civil Aviation Organization (ICAO) spelling alphabet; international maritime signal flags and the International Code of Signals (INTERCO) meaning; and mnemonic icons.



Noise Levels

Acoustics for Urban Planning



aerodrome

ICAO term for **airport**.

aerotropolis

A city in which the layout, infrastructure, and economy are centered around a major airport

air conditioning

Avigation easement.

airport city

When an airport is located away from the city and a new city then develops around the airport.

ALUC

Airports leave us confused. [Airport Land Use Commission.

aluminum overcast

A large aircraft.

amphibion

1930s term for a seaplane or floatplane with retractable wheels for use on land, as well.

angels

Altitude, measured in thousands of feet (“angels two” means 2,000 feet).

anti-smash

Aircraft strobe, or anti-collision lights.

apron

ICAO term for **ramp**.

augur in

Have a major accident.

avgeek

Aviation geek.

barnstormer

Reckless, low-level, stunt pilot.

base

Home airport.

bent

Damaged, broken, or inoperative.

bird

Aircraft.

bird bath

Small pool of standing water on hard surface area such as a runways or ramp.

blowtorch

Jet engines, jet aircraft.

bounce and blow

Touch and go.

brain fade

A mental condition where the person flying the aircraft, suddenly forgets which way to move the controls, or which control to move at all.

Bravo Zulu

Praise for a good job.

bringing the mail

Flying at high speed to return home. [also *carrying the mail*]

bubbas

Fellow pilots of the same aircraft.

build [noun]

Homebuilt aircraft.

bush pilot

A pilot flying in remote areas.

buzzing

Diving near the ground close to people.

CAVOK

Ceiling and Visibility OK. [see *CAVU* and *severe clear*]

CAVU

Ceiling and Visibility Unlimited: the best possible flying weather. [see *CAVOK* and *severe clear*]

Centurion

A pilot with over 100 missions.

cherubs

Altitude under 1,000 feet, measured in hundreds of feet (“cherubs two” means 200 feet).

chop

Turbulence.

chopper

Helicopter.

clean

Clean configuration—gear up, flaps up. [see *dirty*]

coffee grinder

Old, unstable aircraft.

colorful actions

Showing off, or otherwise ignoring safe procedures while flying. [see *flathatting*]

conversion

Severe crash. Converting an aircraft to pieces of plastic and metal.

cowboys

Cargo operators.

craft

Aircraft.

crash and dash

Touch and go.

cumulo-granite

Mountains or cliffs hidden by clouds.

dead stick

An emergency landing due to a power loss when a motor quits.

Delta Sierra

Phonetics for “dumb sh*t”: describes a stupid action, and erases all previous *Bravo Zulus* and *Sierra Hotels*.

dirty

Aircraft configured for landing with gear and flaps down.

ditching

The forced landing of aircraft on water.

down

Broken, not flying.

driver

Pilot (e.g. *Cessna driver*).

drop in for lunch

Crash near people.

dwelt time

The amount of time available that can be spent shopping and dining before a flight departs

feet dry / feet wet

Over land / over water.

flathatting

Unauthorized low-level flying and stunting. [see *colorful actions*]

floor

Ground. [see *ceiling* in Glossary]

flightseeing

Aerial sightseeing.

fly-in community

A housing development situated near an airport that enables homeowners to taxi their planes to their homes and park them there. [see *Residential Through-the-Fence*]

Flying BANANA

Build absolutely nothing anywhere near airports.

flying machine

One of the earliest names for aircraft originally used for the Wright Brothers patent in 1906.

FM

Abbreviation for “f*cking magic”: very high-tech; used to describe how something you don’t understand actually works. [Also *PFM Pure F*cking Magic*]

FOD

Foreign object damage. Typically when objects hit the rotor.

Fox 4

High-speed mid-air collision. Note: Fox 1, 2 and 3 are types of missiles.

Fox 5

High-speed crash.

George

Auto-pilot.

gizmo

A piece of technical gear.

go-around

Another landing attempt.

go juice

Jet fuel.

God

Air traffic control.

gone tech

A technical failure which grounds the aircraft.

goo

Bad weather that makes it impossible to see.

gorilla snot

A glue-like substance that is spread over sand to prevent a dust cloud from forming whenever a helicopter takes off or lands.

grease it on

Make a perfect landing

gripe

A mechanical problem with the aircraft.

grounded

Unable to fly.

hangar home

House with a hangar adjacent an airport with a **residential through-the-fence agreement**.

hangar queen

An aircraft that suffers chronic “downs.”

helo

Helicopter.

homesick angel

Airplane that climbs faster than expected.

hop

A mission or flight.

IFE

In Flight Emergency.

Indian night noises

The ominous creaks, pops, and shudders of an aircraft in flight.

iron compass

Railroad tracks, favored by pilots of yore as a dependable aid to surface navigation before radio.

INOP

Inoperative.

involuntary conversion

A crash that converts an operational aircraft into scrap.

jetiquette

The rules or norms that govern correct or polite behavior while on board an airplane.

jink

Drastic, violent maneuver to avoid a collision.

jock

Pilot (e.g. Citation jock).

Kick the tires and light the fires

Pre-flight walk around.

landing hot

Landing at speeds above normal.

Mayday

The ultimate international radio distress call.

Met

Meteorological conditions. Weather.

microflier

An extremely small aircraft.

mid-air

Mid-air collision.

mode confusion

Syndrome afflicting pilots from complex avionics.

nerd bird

A flight to or from a high-tech hub, especially Silicon Valley.

no joy

Failure to make visual sighting or to establish radio communications.

O&D

Origin and destination. [as opposed to an airport that is a 'stopover']

Pan Pan

International radio urgency call. Less serious than **mayday**.

pancake

To crash so hard as to flatten the aircraft.

pax

Passengers

pilot theater

Excessive radio communications.

pirouette

A maneuver described as a high yaw rate in which the aircraft spins.

plumber

An inept pilot.

Popeye

Pilot flying in bad weather or visibility.

POPU

Privately owned, publicly used airport.

prang

To bump, crunch or break an aircraft.

prop

Propeller.

prop wash

The air behind a running propeller or below a running rotor.

proximity event

Near collision.

puke

Someone who flies a different kind of aircraft than you.

pushing the envelope

Flying near the edge of disaster. [see *envelope* in Glossary]

quick fix

Stop-gap measure to repair an aircraft quickly.

ramp

Apron.

ramp-rat

Ground crew.

Roger

Message received and understood.

rotorhead

Helicopter pilot.

S.O.B.

Souls on board. All crew and passengers. (also POB: number of persons on board)

sats

GPS satellites.

scrub

Cancel the flight.

scud

Low clouds or rain.

scud running

Flying at low altitude to avoid low clouds and/or bad weather.

severe clear

No clouds and unlimited visibility. [see *CAVOK* and *CAVU*]

Sierra Hotel

Phonetic abbreviation for “sh*t hot,” high praise; the pilot’s favorite and all-purpose expression of approval.

slop

Imprecision of a control system.

smash

Airspeed.

smoking hole

An aircraft crash site.

socked in

Grounded by bad weather.

soup

Overcast weather or thick fog. [also *pea soup*]

speed of heat, warp one

Very, very fast.

stick-throttle interconnect

Mock-tech term for a pilot.

swap paint

Mid-air or ground collision with another man-made object.

sweet

Up and working.

Tally Ho

Aircraft in sight. [see *no joy*]

Tango Uniform

Polite phonetics for “t*ts up”; broken, not functioning.

tarmac

While the word tarmac is often used colloquially to mean the airport runway, its original meaning is “a tarmacadam road or surface,” where *tarmacadam* is a combination of *tar* and *macadam*, pavement made of layers of compacted broken stone, now usually bound with tar or asphalt.

tarmac attack

Citizen’s opposition to airport development.

throttle jockey

Irresponsible pilot.

tiger

An aggressive pilot.

totaled

Complete wreck. [see *plastic bag*]

touch and go

Landing practice wherein an aircraft does not make a full stop after a landing, but proceeds immediately to another take-off.

tree trimmer

Pilot or aircraft flying near trees or crashing in a tree. [see *weed wacker*]

trike

Weight-shift-control aircraft, such as a paraglider.

tumbleweed

Pilot who is disoriented or who has lost situational awareness.

tweak

To fine tune or adjust.

twirly

Airport beacon or anti-collision beacon on an aircraft or structure.

two-for-one special

The plane touches down on landing, bounces up, then touches down again.

uncontrolled landing

Crash landing.

“Watch this!”

The two most dangerous words in aviation. (similar to “Hold my beer.”)

weed wacker

Pilot or aircraft flying extremely low or crashing in the weeds.

Whiskey Charlie

Who cares?

Wilco

Will comply.

WOT

Wide Open Throttle. Full power.

zero-zero

No ceiling, no visibility.