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ACRONYMS

The following is a list of acronyms used in the EIS.

AAC	Arizona Administrative Code
AANG	Arizona Air National Guard Base
AC	Advisory Circular
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Material
ADEQ	Arizona Department of Environmental Quality
ADG	Airplane Design Group
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AEDT	Aviation Environmental Design Tool
AFE	Above Field Elevation
AFP 44	Air Force Plant 44
AGFD	Arizona Game and Fish Department
AGL	Above Ground Level
AHERA	Asbestos Hazards Emergency Response Act
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AMARG	Aerospace Maintenance and Regeneration Group
ANCA	Airport Noise and Capacity Act of 1990, as amended
APE	Areas of Potential Effects
APU	Auxiliary Power Unit
AQCR	Air Quality Control Region
ARFF	Aircraft Rescue and Fire Fighting
ARS	Arizona Revised Statutes
ASA	Airport Service Area
ASCE	American Society of Civil Engineers
ASEP	Airfield Safety Enhancement Project
ASM	Arizona State Museum
ASNA	Aviation Safety and Noise Abatement Act of 1979, as amended
AST	Aboveground Storage Tank
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
ATO	Air Traffic Organization
AvGas	Low-lead aviation gasoline
AZPDES	Arizona Pollutant Discharge Elimination System
AVQ	Marana Regional Airport
AZDA	Arizona Department of Agriculture
BA	Biological Assessment

ACRONYMS

BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMPs	Best Management Practices
BO	Biological Opinion
BOD	Biochemical Oxygen Demand
BTU	British Thermal Units
BUSTR	Bureau of Underground Storage Tanks Regulations
CAA	Clean Air Act of 1970, as amended
CAGR	Compound Annual Growth Rate
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
CERFA	Community Environmental Response Facilitation Act of 1972
C.F.R	Code of Federal Regulations
CFS	Cubic Feet per Second
CH_4	Methane
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalencies
COD	Chemical Oxygen Demand
CWA	Clean Water Act of 1972 (Federal Water Pollution Control Act, as amended)
CZMA	Coastal Zone Management Act of 1972, as amended
CY	Cubic Yards
Day	7:00 am to 9:59 pm
dB	Decibel
dBA	A-weighted decibel
DMA	Davis-Monthan Air Force Base
DME	Distance Measuring Equipment
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
ECM	Earth Covered Magazines
EDDA	Environmental Due Diligence Audits
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act of 1973, as amended
FAA	Federal Aviation Administration

ACRONYMS

FBO	Fixed-Base Operator
FCD	Flood Control District
FEMA	Federal Emergency Management Agency
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
FIRM	Flood Insurance Rate Maps
FIS	Federal Inspection Service
FPPA	Farmland Protection Policy Act of 1981
FUP	Floodplain Use Permit
FY	Fiscal Year
GA	General Aviation
GAV	Ground Access Vehicles
GHG	Greenhouse Gas
GIS	Geographic Information System
GPS	Global Positioning System
GRP	Gross Regional Product
GSE	Ground Support Equipment
GWP	Global Warming Potential
H_2O	Water, Water Vapor
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HS	Hot Spot
HSWA	Hazardous and Solid Waste Amendments of 1984
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilating, and Air Conditioning
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IPCC	Intergovernmental Panel on Climate Control
Jet A	Jet fuel
kWh	Kilowatt Hours
LAX	Los Angeles International Airport
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Noise Level
LL	Low-Lead
LOC	Localizer
LOS	Level of Service
LTO	Landing and Takeoff Cycle
LWCF	Land and Water Conservation Fund Act of 1965

ACRONYMS

MA	Metropolitan Area
MALSR	Medium Intensity Approach Lights with Runway Alignment Indicator Lights
MBTA	Migratory Bird Treaty Act of 1918, as amended
MBTRA	Migratory Bird Treaty Reform Act of 1998, as amended
MGD	Million Gallons per Day
mg/L	Milligrams per liter
MOA	Memorandum of Agreement
MMCF	Million Cubic Feet
MMRP	Mitigation Monitoring and Reporting Program
MSA	Munitions Storage Area
MSL	Mean Sea Level
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAVAID	Navigational Aid
NCDC	National Climatic Data Center
NEM	Noise Exposure Map
NEPA	National Environmental Policy Act of 1969, as amended
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NGB	National Guard Bureau
NHPA	National Historic Preservation Act of 1966, as amended
Night	10:00 pm to 6:59 am
NLR	Noise Level Reduction
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NPDES	National Pollution Discharge Elimination System
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetland Inventory

ACRONYMS

O_3	Ozone
O&D	Origin & Destination (passengers)
OAG	Official Airline Guide
OFA	Object Free Area
OHWM	Ordinary High Water Mark
OPA	Oil Pollution Act of 1990
PAH	Polynuclear Aromatic Hydrocarbon
PAPI	Precision Approach Path Indicator
Pb	Lead
PCC	Pima County Code
PDEQ	Pima County Department of Environmental Quality
PFC	Passenger Facility Charges
PHX	Phoenix Sky Harbor International Airport
PM	Particulate Matter (PM_{10} & $PM_{2.5}$)
PPA	Pollution Prevention Act of 1990
PPC	Pima Pineapple Cactus
RCRA	Resource Conservation and Recovery Act of 1976, as amended
REIL	Runway End Identified Lights
RHA	Rivers and Harbors Act of 1899, as amended
RNAV	Area Navigation
ROD	Record of Decision
RPM	Revolutions Per Minute
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVR	Runway Visual Range
RYN	Ryan Airfield
SARA	Superfund Amendments and Reauthorization Act of 1986
SCA	Stream Conservation Area
SDCP	Sonoran Desert Conservation Plan
SDWA	Safe Drinking Water Act
SEI	Structural Engineering Institute
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SIC	Standard Industry Classification
SID	Standard Instrument Departure
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
SPCC	Spill Prevention Control and Countermeasure Program

ACRONYMS

SWPPP	Stormwater Management Pollution Prevention Plan
TAA	Tucson Airport Authority
TAF	Terminal Area Forecast
TARP	Tucson Airport Remediation Project
TBD	To Be Determined
TEP	Tucson Electric Power
THPO	Tribal Historic Preservation Office
TIAA	Tucson International Airport Area
TIP	Transportation Improvement Program
TMSA	Tucson Metropolitan Statistical Area
TOFA	Taxiway Object Free Areas
TSS	Total Suspended Solids
TUS	Tucson International Airport
$\mu g/m^3$	Micrograms per cubic meter
USACE	United States Army Corps of Engineers
USAF	United States Air Force
U.S.C.	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USDEQ	United States Department of Environmental Quality
USDOI	United States Department of Interior
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USFWCA	United States Fish and Wildlife Coordination Act of 1934, as amended
USGS	United States Geological Survey
UST	Underground Storage Tank
VFR	Visual Flight Rules
VOC	Volatile Organic Compounds
VOR	VHF Omnidirectional Radio Range

GLOSSARY

The following glossary of terms is provided to aid the reader. Not all the terms provided are used in the EIS, but are included to provide context and to assist the reader since many aeronautical terms are very similar.

Airplane Design Group (ADG) – A ***Federal Aviation Administration*** – defined grouping of aircraft types, consisting of six groups based on wingspan and tail height. ADG is defined in FAA Advisory Circular 150/5300-13A, *Airport Design*, Table 1-2, "Airplane Design Group (ADG)."

Aviation Environmental Design Tool (AEDT) – A ***Federal Aviation Administration*** software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences. AEDT is a comprehensive tool that provides information to ***Federal Aviation Administration*** stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review activities required under ***NEPA*** by consolidating the modeling of these environmental impacts in a single tool. AEDT 2d is the latest version.

Air Route Traffic Control Center (ARTCC or Center) – A ***Federal Aviation Administration*** facility established to provide ***air traffic control*** services to aircraft operating on ***Instrument Flight Rules*** flight plans within ***controlled airspace***, principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory and assistance services may be provided to ***Visual Flight Rules*** aircraft.

Air Traffic – Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air Traffic Control (ATC) – An FAA service operated for the public, to ensure adequate separation of aircraft and to promote the safe, orderly, and expeditious flow of air traffic. The air traffic facility with jurisdiction over mapped and designated airspace may authorize aircraft to proceed under specified traffic conditions within ***controlled airspace***.

Airport Traffic Control Tower (ATCT) – An ***airport traffic control*** facility established on an airport to provide for safe, orderly, and expeditious flow of air traffic arriving at and departing from an airport, including airport surface areas such as runways and taxiways.

Air Traffic Service (ATS) Routes – "ATS route," a generic term, includes "VOR Federal airways," "colored Federal airways," "alternate airways," "jet routes," "Military Training Routes," "named routes," and "RNAV routes." The term "ATS route" serves as an overall title for listing the types of routes that comprise the United States route structure.

GLOSSARY

Aircraft Approach Category – A grouping of aircraft based on a speed calculation that takes into account the stall speed in the landing configuration at maximum gross landing weight. An aircraft must fit only one category; its category determines speed minimums that must be observed for various maneuvers. For example, an aircraft which falls in *Category A,* but is circling to land at a speed in excess of 91 knots, must use the approach *Category B* minimums when circling to land. The 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. (*See* 14 C.F.R § 97.3.)

Aircraft Classes – For the purposes of wake turbulence aircraft separation minimums, ATC classifies aircraft as (a) *Heavy* - Aircraft capable of takeoff weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight, (b) *Large* – Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to 255,000 pounds, or (c) *Small* – Aircraft of 41,000 pounds or less maximum certificated takeoff weight.

Aircraft Operation – One landing or one takeoff of an aircraft.

Aeronautical Information Manual (AIM) – A publication containing basic flight information and ***air traffic control*** procedures, designed primarily as a pilot's information and instructional manual for use in the ***National Airspace System***.

Airport Departure Rate – A dynamic parameter specifying the number of aircraft per hour that can depart from an airport and be accepted into the airspace.

Airport Elevation – The highest point on an airport's usable runways, expressed in feet above ***mean sea level***.

Airport Improvement Program (AIP) – A Federal funding program for airport improvements that provides grants to public agencies — and, in some cases, to private owners and entities — for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems. AIP is periodically reauthorized by Congress with funding appropriated from the Aviation Trust Fund. Proceeds to the Aviation Trust Fund are derived from excise taxes on airline tickets, aviation fuel, etc.

Airport Layout Plan (ALP) [1] – One of the key products of a master plan is a set of drawings that provides a graphic representation of the long-term development plan for an airport. The primary drawing in this set is the Airport Layout Plan. Other drawings may also be included, depending on the size and complexity of the individual airport.

Airport Operations – The total number of aircraft takeoffs (departures) and landings (arrivals) from an airport.

[1] FAA Advisory Circular 150/5070-6B

GLOSSARY

Airport Reference Code (ARC)[2] – 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. The first component of the ARC is a capital letter (A, B, C, D, or E with "A" being the lowest, and "E" being the highest), which refers to the aircraft approach speed in its landing configuration. The second component, which is depicted by a Roman numeral (I, II, III, IV, V, VI, with "I" being the lowest and "VI" being the highest), refers to aircraft wingspan. Together, the two components relate aircraft operational and physical characteristics to the required design criteria of various airport components, such as runway/taxiway widths, runway to taxiway separation standards, and obstacle clearance items. Under this methodology, appropriate safety margins are provided in the physical design of airport facilities.

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

Air Traffic Service (ATS) Routes – An ATS route is a specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services. "ATS route," a generic term, includes "VOR Federal airways," "colored Federal airways," "alternate airways," "jet routes," "Military Training Routes," "named routes," and "RNAV routes." The term "ATS route" serves as an overall title for listing the types of routes that comprise the United States route structure.

Airway – A corridor of ***controlled airspace*** whose centerline is established by radio ***navigational aids***. Low altitude airways (between 3,000 and 18,000 feet **Mean Sea Level**) are identified by number with the letter V as a prefix. High altitude airways (above 18,000 feet *Mean Sea Level*) are known as Jet airways and are identified by number with the letter J as a prefix.

Ambient Noise – The total sum of noise from all sources in a given place and time. *See* also ***Natural Ambient Noise***.

Approach Light Systems (ALS) – One of various illuminated navigational aids to assist pilots of aircraft during landing that may be installed on an airport. The ALS is a series of lights that provide visual guidance to landing aircraft by radiating light beams in a directional pattern, to assist the pilot when aligning aircraft with the extended runway centerline on ***final approach***.

Aquifer – A subsurface layer of permeable rock, sand, soil or gravel capable of bearing water.

[2] FAA Advisory Circular 150/5070-6B

GLOSSARY

Area Navigation (RNAV) – A method of navigation that enables aircraft to fly on any desired flightpath within the coverage of ground- or space-based navigational aids, within the limits of the capability of self-contained systems, or a combination of both capabilities. RNAV procedures offer the advantages of routings that save time and fuel; reduce dependence on radar vectoring, altitude, and speed assignments, allowing for reductions in required radio transmissions with ***air traffic control***; and provide for the more efficient use of airspace. This method of ***instrument flight rules (IFR)*** navigation allows a pilot to choose any course with a network of navigation beacons, rather than navigating directly to and from the beacons.

Attenuation – An acoustical phenomenon whereby ***sound*** energy is reduced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, other natural features, and man-made features (e.g., sound insulation).

A-Weighted Decibels (dBA) – A system for measuring ***sound*** energy that is designed to represent the response of the human ear to sound. Energy at frequencies more readily detected by the human ear is more heavily weighted in this measurement system, while frequencies less readily detected are assigned lower weights. A-weighted *sound* measurements are commonly used in studies where the human response to *sound* is the object of the analysis.

Base Leg – A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

Baseline Condition – The existing condition or conditions prior to future development, which serves as a foundation for analysis.

Commuter Aircraft – Generally, aircraft of designated size or seating capacity (usually 19 or fewer seats) that support scheduled air transportation services for compensation or hire in air commerce, with a frequency of at least five round trip operations per week on at least one route according to a published flight schedule. Commuter aircraft operate pursuant to a ***Federal Aviation Administration*** air carrier certificates issued under 14 C.F.R Parts 119 and 135 of the ***Federal Aviation Regulations***. (*See* 14 C.F.R. § 119.3, *Definitions*.) ***Regional Jets*** (RJs) are not "commuters," because they are large transport category aircraft and fall within the *Federal Aviation Administration's* ***air carrier aircraf***t category.

Contour – A contour line of a function of two variable is a curve along which the function has a constant value. For example, a noise contour line is a line of equal or constant noise level on a map. *See* ***Noise Contour Map***.

GLOSSARY

Controlled Airspace – Airspace of defined dimensions within which ***air traffic control*** services are provided to flights operating under both ***Instrument Flight Rules*** and ***Visual Flight Rules*** in accordance with the airspace classification. Controlled airspace is designated as Class *A*, Class *B,* Class *C*, Class *D*, and Class *E*, generally according to altitude above the surface, distance from a primary airport, and volume of aircraft operations. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements (for specific operating requirements, *see* 14 C.F.R. Part 91).

Crosswind Leg – A flight path at right angles to the landing runway off its upwind end.

Day-Night Average Sound Level (DNL) – A noise measure used to describe the average ***sound*** level over a 24-hour period, typically an average day over the course of a year. In computing DNL, an extra weight of ten ***decibels*** is assigned to noise occurring between the hours of 10:00 p.m. and 7:00 a.m. to account for increased annoyance when ambient noise levels are lower and people are trying to sleep. DNL may be determined for individual locations or expressed in noise contours. This metric is used in NEPA documents for airports in Arizona and all states other than California.

dBA - ***See A-Weighted Decibel*** **– Decibel (dB) –** A unit used to measure the intensity of a sound by comparing it with a given level on a logarithmic scale. ***Sound*** is energy and is measured by its pressure. Because of the enormous range of *sound* pressures to which the human ear is sensitive, the raw sound pressure measurement is converted to the ***decibel*** scale for purposes of description and analysis. Because the *decibel* scale is logarithmic, a ten-*decibel* increase in *sound* is perceived as a doubling of sound (or twice as loud) by the human ear.

Declared Distances – The distance the airport owner declares available for the airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements.

Design Aircraft – The most critical aircraft type currently using, or projected to use, the airport, with a minimum of 500 operations per year.

Displaced Threshold – A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold may be available for takeoffs in both directions and landings from the opposite direction.

Distance Measuring Equipment (DME) – A flight instrument that measures the line-of-sight distance of an aircraft from a navigational radio station in ***nautical miles***. As a transponder-based radio navigation system, DME measures the ***slant-range distance*** by timing the propagation delay of very high frequency (VHF) radio signals. Pilots use DME to determine the distance of their aircraft from a land-based transponder, which is typically collocated with a ***Very High Frequency Omnidirectional Radio Range (VOR) station.***

GLOSSARY

Downwind Leg – A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

Earth Covered Magazines (ECM) – Earth Covered Magazine (ECM) structures are built to store Ammunition and Explosive materials (AE). ECMs are designed to protect their contents and prevent propagation of an explosion that may occur in an adjacent magazine. They are not designed to resist the damaging effects from an internal explosion, although they can effectively contain the effects from an explosion of very small AE quantities. Proper siting of an ECM, away from other Potential Explosion Sites (PES) and Exposed Sites (ES) including operations buildings, piers, aboveground magazines, rail sidings, classification yards, etc., ensures against unacceptable damage and injuries in the event of an accidental explosion.

Easement – The legal right of one party to cross or otherwise use someone else's land for a specified purpose.

Engine Run-ups – A routine procedure for testing aircraft systems by running one or more engines at a high power setting. Engine run-ups are normally conducted by airline maintenance personnel checking an engine or other on-board system following maintenance.

Enplanements – The number of revenue passengers boarding an aircraft at an airport during a given time period.

Environmental Impact Statement (EIS) – As defined in 40 C.F.R. § 1508.11, an EIS is a detailed written statement as required by section 102(2)(C) of the National Environmental Policy Act, as amended (42 U.S.C. 4321, et seq.) (NEPA). As set forth in 42 USC § 4332(C), agencies of the Federal Government shall by "include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of the environment and maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action, should it be implemented.

Equivalent Sound Level (Leq) – The ***A-weighted*** energy average ***sound*** level experienced over a given period of time. The metric is expressed as ten times the log of the total noise energy divided by the number of seconds during the period under consideration.

GLOSSARY

Executive Order 13807 – The Presidential Executive Order on establishing discipline and accountability in the environmental review and permitting process for infrastructure. This order provides that the federal government will make timely decisions with the goal of completing all federal environmental reviews and authorization decisions for major infrastructure projects within two years, measured from the date of the publication of a notice of intent to prepare an environmental impact statement. The federal lead, cooperating, and participating agencies for each major infrastructure project shall all record any individual agency decision in one record of decision.

Federal Aviation Administration (FAA) – One of several transportation modal federal government agencies under the United States Department of Transportation. The FAA is the Federal agency responsible for insuring the safe and efficient use of the nation's airspace and for supporting the requirements of national defense.

Final Approach – A flight path in the direction of landing that follows the extended runway centerline. It usually extends from the ***base leg*** to the runway.

Fixed-Base Operator (FBO) – A business granted the right by an airport to operate at the airport and provide aeronautical services such as hangar space, fuel, flight training, repair, and maintenance to airport users.

Fleet Mix – The collection of differing types of aircraft operating in a particular airport environment.

Flight Track Utilization – The use of established routes for arrival and departure by aircraft to and from the runways at the airport.

General Aviation Aircraft – General aviation (GA) is the term for all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. GA aircraft generally include those U.S. registered civil aircraft, which operate, for private and non-commercial purposes and whose operations are not governed by 14 C.F.R. Parts 119, 121, 125, or 135. GA aircraft range in size from small single-engine propeller aircraft to large ***turbojet*** private aircraft.

Geographic Information Systems (GIS) – An information system that is designed for storing, integrating, manipulating, analyzing, and displaying data referenced by spatial or geographic coordinates.

Glide Slope (GS) – An electronic navigational aid owned and operated by the FAA. GS provides vertical guidance for aircraft during approach and landings consist of the following:

> Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ***Instrument Landing System***, or visual ground aids, such as ***Visual Approach Slope Indicator***, which provide vertical guidance for ***visual flight rules*** approach or for the visual portion of an ***instrument approach*** and landing.

GLOSSARY

Global Positioning System (GPS) – GPS equipment onboard an aircraft takes advantage of various radio navigation and/or *Global Positioning System* routes to guide the aircraft. GPS is a system of satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.

Ground Access Vehicles (GAV) – Any vehicle licensed to operate on Airport roads.

Ground Effect – Noise ***attenuation*** attributed to absorption or reflection of noise by man-made or natural features on the ground surface.

Hot Spot (HS) – A location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

Instrument Approach – A series of predetermined maneuvers for the orderly transfer of an aircraft under ***instrument flight rules*** 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) – That portion of the ***Federal Aviation Regulations*** (14 C.F.R. Part 91) specifying the procedures to be used by aircraft during flight in ***Instrument Meteorological Conditions.*** These procedures may also be used under visual conditions and provide for ***positive control*** by ***Air Traffic Control***. (*See* also ***Visual Flight Rules)***.

Instrument Landing System (ILS) – An electronic system installed at some airports that helps guide pilots to runways for landing during periods of limited visibility or adverse weather. An ILS is composed of both vertical and horizontal guidance using both a Glide Slope Antenna, and a Localizer Antenna as shown, below.

Example of a Glide Slope Antenna

Source: Photos courtesy of the Tucson Airport Authority, 2016

Example of a Localizer Antenna

Source: Photos courtesy of the Tucson Airport Authority, 2016

Instrument Meteorological Conditions (IMC) – Weather conditions expressed in terms of visibility, distance from clouds, and cloud ceilings during which all aircraft are required to operate using ***Instrument Flight Rules (IFR)***.

Itinerant Operation – An aircraft flight that ends at an airport different from where the flight began.

GLOSSARY

Knots – A unit of measurement of speed measured as the distance in ***nautical miles*** (6,076.1 feet) covered in one hour. (Approximately equal to 1.15 statute miles per hour.)

Land Use Compatibility – The ability of land uses surrounding the airport to coexist with airport-related activities with minimum conflict.

Landing and Takeoff (LTO) Cycle – The time that an aircraft is in operation at or near an airport. An LTO cycle begins when an aircraft starts its ***final approach*** (arrival) and ends after the aircraft has made its climb-out (departure).

Ldn - *See* ***DNL***. Ldn is used in place of *DNL* in mathematical equations only.

Leq - *See* ***Equivalent Sound Level***.

Local Operation – An aircraft flight that begins and ends at the same airport.

Localizer – The component of an ***Instrument Landing System*** that provides lateral course guidance to the runway.

Maximum Noise Level (Lmax) – The maximum ***sound*** pressure for a given event adjusted toward the frequency range of human hearing.

Mean Sea Level (MSL) – The average height of the surface of the sea for all stages of the tide; used as a reference for elevations; also called sea level datum.

Medium Intensity Approach Lights with Runway Alignment Indicator Lights (MALSR) – A lighting system installed in airport runway approach zones along the extended centerline of the runway. The MALSR, consisting of a combination of threshold lamps and steady burning light bars and flashers, provides visual information to pilots on runway alignment, height perception, roll guidance, and horizontal references for ***CAT I*** precision approaches.

Example of a MALSR

Source: Photos courtesy of the Tucson Airport Authority, 2016

Military Operations Area – Airspace established to separate or segregate certain non-hazardous military activities from ***Instrument Flight Rules*** traffic and to identify for ***Visual Flight Rules*** traffic where these activities are conducted.

Munitions Storage Areas (MSA) – An area designated for the safe storage of munitions that would further provide safety areas consistent with ***U.S. Air Force*** standards to ensure the public is not in close proximity to any munitions in the event of a mishap.

National Airspace System (NAS) – The common network of U.S. airspace, air navigation facilities, equipment, services, airports, or landing areas; aeronautical charts, information, and services; rules, regulations, and procedures; technical information, manpower, and materials, all of which are used in aerial navigation to provide a safe and efficient flying environment.

GLOSSARY

National Environmental Policy Act of 1969 (NEPA) – A United States federal law that establishes the environmental review process for proposed Federal actions.

National Pollutant Discharge Elimination System (NPDES) – Federal requirement under the Clean Water Act (CWA) that any discharge of a non-point source of pollution into waters of the United States be in conformance with any established water quality management plan developed under the Clean Water Act.

Nautical Mile – A measurement of distance equal to one minute of arc on the earth's surface (6,076.1 feet or 1,852 meters).

Natural Ambient Noise – *Ambient Noise*, minus man-made sounds.

NAVAIDs (Navigational Aids) – Any electronic or visual facility used by an aircraft for navigation.

Noise Abatement – A measure or action that minimizes the amount of impact of noise on the environs of an airport. Noise abatement measures include aircraft operating procedures and use or disuse of certain runways or ***flight tracks. See also Noise Attenuation. Noise abatement reduces sound at the source.***

Noise Contour Map – A map representing average annual noise levels summarized by lines connecting points of equal noise exposure.

Noise Mitigation – A measure or action that minimizes the amount of impact of noise on the environs of an airport. Noise abatement measures include sound insulation, windows, and doors, construction of noise walls. **Noise mitigation reduces sound at the receptor.**

Nonprecision Approach – A standard ***instrument approach*** procedure providing runway alignment but no ***glide slope*** or descent information.

On-Demand – Generally, U.S. registered civil aircraft of designated size (usually 30 or fewer passenger seats with payload capacity of 7,500 pounds or less) that support on-demand, unscheduled, or infrequently scheduled passenger-carrying or cargo service (including public charters) for compensation or hire, pursuant to an air carrier certificate issued under 14 C.F.R. Parts 119 and 135. (*See* 14 C.F.R. § 119.3, Definitions.) This term includes operations formerly classified as air taxi, a term no longer used by the ***Federal Aviation Administration*** but still used by the U.S. Department of Transportation (USDOT).

Positive Control – Separation of all air traffic within a designated airspace.

GLOSSARY

Precision Approach Path Indicator (PAPI) – Provides visual approach slope guidance to aircraft during an approach. It is similar to a ***Visual Approach Slope Indicator*** but provides a sharper transition between the colored indicator lights.

Example of a PAPI

Source: Photos courtesy of the Tucson Airport Authority, 2016

Precision Approach Procedure – A standard ***instrument approach*** procedure in which an electronic ***glide slope***/glide path is provided (e.g., ***Instrument Landing System*** and ***Precision Approach Radar***).

Precision Approach Radar (PAR) – Navigational equipment located on the ground adjacent to the runway, consisting of one antenna, which scans the vertical plane, and a second antenna, which scans the horizontal plane. The PAR provides the controller with a picture of the descending aircraft in ***azimuth***, distance, and elevation, permitting an accurate determination of the aircraft's alignment relative to the runway centerline and the ***glide slope***.

Profile – The position of the aircraft during an approach or departure in terms of altitude above the runway and distance from the runway end.

Propagation – ***Sound*** propagation is the spreading or radiating of sound energy from the noise source. It usually involves a reduction in sound energy with increased distance from the source. Atmospheric conditions, terrain, natural objects, and manmade objects affect sound propagation.

Public Use Airport – An airport open to public use without prior permission, and without restrictions within the physical capabilities of the facility. It may or may not be publicly-owned.

Quantity-Distance (QD) – The minimum permissible distances between a ***Munitions Storage Area*** and susceptible sites based on the munitions stored in the MSA, as required the United States Air Force Manual 91-201, *Explosive Safety Standards.* The distances are implemented as safety measures.

Runway End Identified Lights (REIL) – Two synchronized flashing lights, one on each side of the ***runway threshold,*** that identify the approach end of the runway.

Example of a REIL

Source: Photos courtesy of the Tucson Airport Authority, 2016

Record of Decision (ROD) – In cases requiring ***Environmental Impact Statements (EIS)***, a concise public record of a federal agency's decision that (a) states what the decision was, (b) identifies the alternatives considered by the agency and specifies which alternative(s) were considered to be environmentally preferable, and (c) states whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted and if not, why they were not. (See 40 C.F.R. § 1505.2)

GLOSSARY

Regional Jet – A jet aircraft that falls within the air carrier aircraft category because of size and payload. For use in air commerce, the ***regional jet*** must be operated pursuant to an air carrier certificate pursuant to an air carrier certificate issued under 14 C.F.R. Parts 119 and 121 of the ***Federal Aviation Regulations***. (*See* 14 C.F.R. § 119.3, for Domestic, Flag, and Supplemental operations). *Regional jets* are not operated as commuter aircraft pursuant to 14 C.F.R. Part 135. *Regional jets* are typically jet aircraft, with approximately 35 to 90 seats. The next-generation *regional jet*s are expected to seat 100 passengers.

Reliever Airport – An airport which, when certain criteria are met, relieves the aeronautical demand on a busier air carrier airport.

Run-up – A routine procedure for testing aircraft systems by running one or more engines at a high power setting. ***Engine run-ups*** are normally conducted by airline maintenance personnel checking an engine or other on board systems following maintenance.

Runway End Identifier Lights (REIL) – Two synchronized flashing lights, one on each side of the ***runway threshold***, which identify the approach end of the runway.

Runway Protection Zone (RPZ) – An area, trapezoidal in shape and centered about the extended runway centerline, designated to enhance the protection of people and property on the ground. It begins 200 feet (60 M) beyond the end of the area usable for takeoff or landing. The RPZ dimensions are functions of the aircraft, type of operation, and visibility minimums. (Formerly known as the clear zone.)

Runway Safety Area (RSA) – A defined surface surrounding the runway prepared or suitable for reducing the risk or damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Runway Threshold – The beginning of that portion of the runway usable for landing.

Scoping – An early and open process for determining the scope or range of issues to be addressed in the ***Environmental Impact Statement*** and identifying the significant issues related to a proposed action. Issues important to the public and local, state, and Federal agencies are solicited through direct mailing, public notices, or meetings. Scoping is generally conducted before development of the *Environmental Impact Statement* scope of work.

Single event – One noise event. For many kinds of analysis, the ***sound*** from single events is expressed using the ***Sound Exposure Level*** metric.

Slant-Range Distance – The line-of-sight between two points, which are not at the same level relative to a specific datum. Slant-range distance is typically measured between an aircraft and a navigational radio station.

Sound – Sound is the result of vibration in the air. The vibration produces alternating bands of relatively dense and sparse particles of air, spreading outward from the source in the same way as ripples do on water after a stone is thrown into it. The result of the movement is fluctuation in the normal atmospheric pressure or sound waves.

GLOSSARY

Sound Exposure Level (SEL) – A standardized measure of a ***single (sound) event***, expressed in ***A-weighted decibels***, that takes into account all sound above a specified threshold set at least ten ***decibels*** below the maximum level. All sound energy in the event is integrated over one second.

Special Use Airspace – Airspace of defined dimensions identified by an area on the earth's surface wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations, which are not part of those activities.

Standard Instrument Departure Procedure (SID) – A planned ***Instrument Flight Rules air traffic control*** departure procedure published for pilot use in graphic and textual form. SIDs provide transition from the terminal to the en route *air traffic control* structure.

Standard Terminal Arrival Route (STAR) – A planned ***instrument flight rules air traffic control*** arrivals procedure published for pilot use in graphic and textual form. STARs provide a transition from the en route ***air traffic control*** structure to an ***outer fix*** or an ***instrument approach*** fix in the terminal area.

Statute Mile – A measure of distance equal to 5,280 feet.

Terminal Radar Approach Control (TRACON) – A ***Federal Aviation Administration Air Traffic Control*** Facility which uses radar and two-way communication to provide separation of air traffic within a specified geographic area in the vicinity of one or more airports.

Terminal Radar Service Area (TRSA) – Airspace surrounding certain airports where ***Air Traffic Control*** provides radar ***vectoring,*** sequencing, and separation on a full-time basis for all ***Instrument Flight Rules*** and participating ***Visual Flight Rules*** aircraft.

Time Above (TA) – The amount of time that ***sound*** exceeds a given ***decibel*** level during a 24-hour period (e.g., time in minutes that the sound level is above 75 ***decibels***).

Thrust Settings – Settings on jet powered aircraft that control the power applied to the engines.

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

Tucson Airport Authority (TAA) – The airport sponsor for Tucson International Airport (TUS) and Ryan Airfield (RYN).

Turbojet – An aircraft powered by a jet turbine engine. The term is customarily used in ***air traffic control*** for all aircraft, without propellers, that are powered by variants of jet engines, including turbofans.

GLOSSARY

Turboprop – An aircraft powered by a turbine engine that drives an aircraft propeller. Aircraft of this type are typically used by airlines on short routes between two relatively close locations.

Upwind Leg – A flight path parallel to the approach runway in the direction of approach.

Vector – Compass heading instructions issued by ***Air Traffic Control*** in providing navigational guidance by radar.

Very High Frequency Omnidirectional Radio Range Station with Tactical Air Navigation (VORTAC) – A navigational aid providing ***VOR azimuth*** and ***Tactical Air Navigation distance measuring equipment*** at one site.

Very High Frequency Omnidirectional Radio Range (VOR) – Ground-based radio ***navigational aid*** transmitting signals in all directions. A VOR provides azimuth guidance to pilots by reception of electronic signals.

Visual Approach – An approach conducted on an ***Instrument Flight Rules*** flight plan, which authorizes the pilot to proceed visually and clear of clouds to the airport.

Visual Approach Slope Indicator (VASI) – A visual aid for final approach to the ***runway threshold***, consisting of two wing bars of lights on either side of the runway. Each bar produces a split beam of light - the upper segment is white, the lower is red.

Visual Flight Rules (VFR) – Rules and procedures specified in *14 C.F.R.* Part 91 for aircraft operations under visual conditions. Aircraft operations under VFR are not generally under ***positive control*** by ***Air Traffic Control***. The term VFR is also used in the U.S. 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 a type of flight plan.

Visual Meteorological Conditions (VMC) – Weather conditions expressed in terms of visibility, distance from cloud, and cloud ceiling equal to or greater than those specified in ***Federal Aviation Regulations*** *14 C.F.R.* Part 91.155 for aircraft operations under ***Visual Flight Rules***.

Yearly Day-Night Average Sound Level – *see* ***DNL***.

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