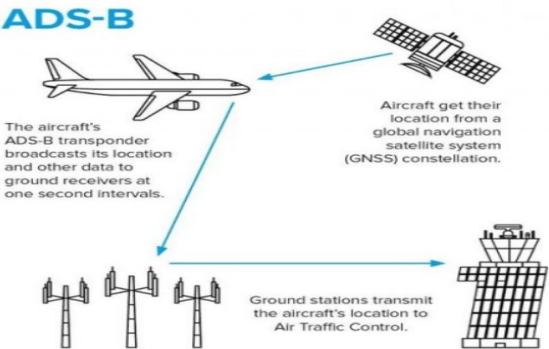


## **Aircraft Noise Community Consultative Group - Glossary of Terms**

**(Version 3 - as at 25.08.2025)**

This glossary provides ANCCG members with a quick reference guide for technical terms relevant to the group. It draws on the technical knowledge of members of the group and their advisors.

<b>A</b>	
<b>AACT</b>	<p>The Auckland Airport Community Trust was established in 2003 by Auckland Airport as a condition of the Environment Court following approval to build a second runway.</p> <p>The primary purpose of the AACT is to provide financial assistance for homeowners eligible for the Noise Reduction Programme. The AACT helps cover the 25% contribution required from homes in the moderate aircraft noise area, given the fulfilment of certain criteria.</p> <p>The AACT also provides community grants to organisations focused on uplifting the local South Auckland community. Since 2003 the Trust has distributed over \$6.6 million grants to over 200 organisations. These grants are awarded to support the communities living within current and projected noise-affected areas in the vicinity of Auckland Airport with a focus on uplifting education outcomes in the Manukau area.</p> <p>Two Trustees are appointed by Auckland Airport, two Trustees are appointed from the community by the Council, and one Trustee is appointed by the ANCCG.</p> <p><a href="#">See AACT website</a>, See <a href="#">Designation 1100</a> Aircraft Noise Mitigation Fund, conditions 11, 12, 12A</p>
<b>AANC</b>	<p>Annual Aircraft Noise Contour – means an <math>L_{dn}</math> contour published by Auckland Airport annually as a prediction of noise from Aircraft Operations for the following 12 months / financial year (excluding noise excepted from the limit in conditions 5 and 6, or by virtue of condition 8 of Designation 1100).</p> <p>The AANC is used to identify the homes that are located within the predicted high aircraft noise area and moderate aircraft noise area where the Airport is required to offer a noise reduction package to eligible property owners (see Noise Reduction Package).</p>
<b>ACI</b>	<p>Airports Council International. <a href="#">(ACI) World</a> is the voice of the world’s airports. <a href="#">ACI World</a> is part of the ACI Federation. <a href="#">In representing the best interests of airports during key phases of policy development, ACI makes a significant contribution toward ensuring a global air transport system that is safe, secure, efficient, and environmentally sustainable. ACI World engages with global policy issues and international regulatory bodies.</a></p>

<p><b>ADS-B</b></p>	<p>Automatic Dependent Surveillance - Broadcast. A cooperative surveillance technology. An aircraft accurately identifies its position via satellite navigation and periodically broadcasts that information (up to twice a second) via a transponder, enabling it to be tracked. The data on its identification, position, altitude, speed and intention can be received by air traffic control services to maintain aircraft separation as a replacement for secondary radar. It can also be received by other aircraft to provide situational awareness and allow self separation.</p> <p>MoT Technical terms and acronyms (23/05/2018), CAA &amp; Avsec NSS <a href="#">ADS-B in New Zealand</a> 31.07.2018 V0.3</p> <p><i>How ADS-B works</i></p>  <p>Source-<a href="#">New Southern Sky website</a></p> <p>The Minister of Transport amended CAA Rule Part 91 allowing all controlled airspace within NZ’s domestic airspace to be designated as ADS-B mandatory from 1 December 2021. If an aircraft cannot practicably or reasonably be equipped with an ADS-B system due to the characteristics of the aircraft type it may be permitted to operate within a prescribed airspace if it has obtained specific authorisation from the ATC unit having jurisdiction over the relevant airspace as part of the ATC clearance to enter that airspace.</p> <p>There are two components of ADS-B. ADS-B OUT is primarily used for surveillance purposes and transmits information from equipped aircraft to ground ADS-B receivers to be used for air traffic control. ADS-B IN improves situational awareness for aircraft and air traffic control, and uses on-board receivers to collect information from other aircraft. There are no plans to make ADS-B IN mandatory in New Zealand.</p> <p>See 5 Feb 2020 Released Cabinet Paper <a href="#">“Moving to ADS-B, New Zealand’s new, safer aviation surveillance system”</a>; <a href="#">Final Rule CAR Part 91 Amendment 34</a>, effective 1 Dec 2021.</p>
<p><b>AEDT</b></p>	<p>Aviation Environmental Design Tool (AEDT) is a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences.</p>
<p><b>Aerodrome</b></p>	<p>(a) means any defined area of land or water intended or designed to be used either wholly or partly for the landing, departure, and surface movement of aircraft; and</p> <p>(b) includes any buildings, installations, and equipment on or adjacent to any such area used in connection with the aerodrome or its administration.</p> <p>See- <a href="#">Civil Aviation Act 2023 s5</a>; and CAR Part 1 CAA Consolidation, <a href="#">Definitions and Abbreviations, 05 Apr 2025</a>, p7</p>

<b>Aeropath</b>	<p>Aeropath is an aeronautical information management (AIM) and navigation services provider with experience across 20 countries.</p> <p>It offers procedure and airspace design, performance based navigation (PBN), training and aeronautical data services that support customers in the evolution from AIS (aeronautical information services) to AIM, high quality, on time aeronautical information.</p> <p>Aeropath is responsible for the production and distribution of Aeronautical Information Publications (AIP), for NZ and a number of Pacific States. It is an independent company wholly owned by Airways NZ.</p> <p>See <a href="#">Aeropath website</a></p>
<b>AIAL</b>	<p>Auckland International Airport Limited.</p> <p>Under the AUP Designation 1100, AIAL has a minimum of two representatives on the ANCCG.</p>
<b>AIC</b>	<p>Aeronautical information circular.</p>
<b>AIP</b>	<p>Aeronautical Information Publication is a set of documents that provide all the operational information required for safe national and international air navigation within NZ airspace. It is produced by Aeropath under contract to CAA. It follows a standard format specified by ICAO and used around the world for publishing information about each nation’s aviation system, including national regulations and requirements, meteorological systems, en-route information, air traffic control, ATS routes, aerodrome information and various charts such as aeronautical charts, visual charts and aerodrome obstacles. Each aerodrome has a separate section in the AIP. There are set deadlines for when changes (termed supplements) to the AIP must be submitted to Aeropath.</p> <p>Access via <a href="#">CAA website</a>, <a href="#">AIP New Zealand website</a>, <a href="#">Airways website</a> or <a href="#">AIP Shop website</a>.</p>
<b>Airport</b>	<p>For ANCCG purposes, this means Auckland International Airport Limited (AIAL).</p>
<b>Airport Precinct</b>	<p>The land owned by AIAL which covers an area of approximately 1,500 hectares.</p> <p>Chapter I of the AUP sets out details of the Auckland Airport Precinct including amongst other matters the policies, objectives, activities, standards and assessment criteria.</p> <p>See <a href="#">AUP Chapter I402</a>, operative in part.</p>
<b>Airside</b>	<p>The movement area of an aerodrome and its adjacent terrain and buildings or portions, to which access is controlled.</p>
<b>Airways</b>	<p>Airways Corporation of New Zealand Limited (Under the AUP Designation 1100, it has one ANCCG representative).</p> <p>Airways is NZ’s air navigation service provider. The company manages NZ’s FIR (30 million square kilometres of airspace) providing air traffic control, surveillance, communication, flight inspection, mapping and airspace design services. Its staff deliver services throughout NZ and in over 65 countries. Airways was established in 1987, is a State Owned Enterprise and operates under rules set down by the CAA, which are developed using the ICAO's guidelines.</p> <p>See Airways website <a href="#">About Airways</a> and <a href="#">The Treasury website</a></p>

<b>AKL</b>	Auckland International Airport Limited.
<b>Ambient noise</b>	Total noise level in a specified environment.  NZS 6805: 1992 definition - The totally encompassing sound in a given situation at a given time, from all sources near and far including the specific sound.
<b>ANB</b>	Air Noise Boundary – Term set out in the NZS 6805: 1992. For Auckland Airport that equates to the boundary of the HANA where noise levels must not exceed 65 dB L <sub>dn</sub> .
<b>ANC</b>	Actual Noise Contours – Represents the actual aircraft activity that occurred in a financial year and uses the measured noise levels at three permanent noise monitoring locations associated with the existing AIAL runway.
<b>ANCCG</b>	Aircraft Noise Community Consultative Group.  The ANCCG was set up under the conditions of Auckland Airport’s designation in the Auckland Council Unitary Plan. It is an independently chaired group composed of representatives from Auckland Airport, the aviation industry, local boards, the community, and Iwi. The ANCCG considers and makes recommendations to Auckland International Airport Limited on aircraft noise matters arising from the operation of Auckland Airport.
<b>ANCCG Local Board Representatives</b>	Under the AUP Designation 1100, members are appointed by the following 12 Local Boards: Māngere- Ōtāhuhu, Ōtara- Papatoetoe, Manurewa, Howick, Franklin, Maungakiekie-Tāmaki, Albert-Eden, Puketāpapa, Whau, Ōrākei, Waitākere Ranges, Papakura. When appointing its representative Local Boards have often chosen to appoint an alternate member to attend when the primary appointee is unavailable.
<b>ANMR</b>	Annual Noise Management Report - Each year under Condition 9(b) of Designation 1100, AIAL is required to prepare an ANMR which summarises the measurements and modelling required by Condition 5(d) and identifies past and future initiatives for noise reduction.
<b>ANNA</b>	Aircraft Noise Notification Area - an area that is outside the high aircraft noise area and moderate aircraft noise area and that will have future noise levels between 55 and 60dB L <sub>dn</sub> . This is an Auckland Unitary Plan term specific to managing noise at Auckland Airport.
<b>Apron (APN)</b>	Is a defined area on a land aerodrome intended to accommodate aircraft for the purpose of loading or unloading passengers or cargo, refuelling, parking or maintenance.  See CAR Part 1 CAA Consolidation, <a href="#">Definitions and Abbreviations, 5 Apr 2025</a> , p15
<b>Area of Benefit</b>	The areas defined in the Auckland Unitary Plan as: the high aircraft noise area (HANA), moderate aircraft noise area (MANA), and aircraft noise notification area (ANNA).

<b>ASAN</b>	<p>Activities Sensitive to Aircraft Noise. Means any dwellings, boarding houses, tertiary education facilities, marae, integrated residential development, papakāinga, retirement village, supported residential care, educational facilities, care centres, hospitals and healthcare facilities with an overnight stay facility.</p> <p>See <a href="#">Designation 1100, Conditions (1)</a> p2</p> <p>A definition is provided specifying the same activities in a different order is provided in the AUP:</p> <p>Any dwellings, boarding houses, marae, papakāinga, integrated residential development, retirement villages, supported residential care, care centres, education facilities, tertiary education facilities, hospitals, and healthcare facilities with an overnight stay facility.</p>
<b>ATC</b>	<p>Air Traffic Control.</p>
<b>ATM</b>	<p>Air Traffic Management.</p>
<b>ATS</b>	<p>Air Traffic Services – A set of services including air traffic control, flight information service, aerodrome flight information service (AFIS), alerting service, and any other service considered by the Director of Civil Aviation to be necessary or desirable for the safe and efficient operation of the civil aviation system.</p> <p>See AIP NZ <a href="#">Definitions GEN2.2-33</a></p>
<b>Auckland Council Representative</b>	<p>Under the AUP Designation 1100, one ANCCG representative is appointed by Auckland Council.</p>
<b>AUP</b>	<p>Auckland Unitary Plan. The key provisions relating to Auckland Airport are provided in chapters I402 (Auckland Airport Precinct) and D24 (Aircraft Noise Overlay) and via Designation 1100, 1101 and 1102 which among other things create the ANCCG and its Terms of Reference, set the noise contours (HANA, MANA and ANNA), set noise monitoring requirements, create the obligation to offer noise reduction packages and set the specifications of the offers, require an Annual Noise Management Report and create a Noise Mitigation Fund administered by trustees of the AACT with annual specified contributions by Auckland Airport.</p> <p>See <a href="#">AUP</a> and <a href="#">Designation Schedule - AIAL</a></p>
<b>Aviation Industry Association of New Zealand Inc. (AIA)</b>	<p>Is a membership organisation established in 1950 to champion safety, represent member interests and help them be more effective in business.</p> <p>See <a href="#">Aviation NZ website</a></p>
<b>Avsec</b> <i>Kaiwhakamaru Rererangi</i>	<p>Aviation Security Service - Avsec is an operational unit within CAA. It provides services that include:</p> <ul style="list-style-type: none"> <li>• Screening and searching passengers, crew, airport workers, baggage, aircraft, cargo, etc</li> <li>• Undertaking security patrols and escorts</li> <li>• Managing the airport identity card system</li> <li>• Collaborating with other domestic and international security and border agencies.</li> </ul> <p>See website “<a href="#">Our role in aviation security</a>”</p>
<b>A-weighting</b>	<p>The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.</p>


	<p>The human ear responds more to frequencies between 500 hertz (Hz) and 8 kHz and is less sensitive to very low and very high frequency sounds. The response also varies with sound level.</p> <p>To mimic the sensitivity of the human ear, sound level meters are equipped with filters, or settings, that apply frequency weightings.</p> <p>The most commonly used filter is the "A-weighting" which reduces the sensitivity of the sound measuring instrument to both low and very high frequency sounds.</p> <p>"A-weighting" is widely adopted and approved for measuring environmental or outdoor community noise, including aircraft noise.</p>
<b>B</b>	
<b>BARNZ</b>	<p>Board of Airline Representatives of New Zealand. A not-for-profit incorporated society, BARNZ is the voice of NZ's airline industry. It works with Government, regulators, businesses and local communities to provide cost savings and service improvements for its airline and non-airline members; and to create an environment that fosters continued, sustainable growth for them in NZ.</p> <p>Under the AUP Designation 1100, BARNZ has two representatives on the ANCCG.</p> <p>See <a href="#">BARNZ website</a>.</p>
<b>C</b>	
<b>CAA</b> <i>Te Mana Rererangi Tūmatanui o Aotearoa</i>	<p>Civil Aviation Authority of New Zealand - The CAA is a Crown Entity responsible to the Minister of Transport. It regulates civil aviation in NZ, establishing civil aviation safety and security standards, and monitoring adherence to those standards. It also enforces the ICAO's standards and regulations in NZ.</p> <p>See <a href="#">CAA website</a>.</p>
<b>CAA CAR</b>	<p>CAA Civil Aviation Rules – these are the NZ aviation rules that have been signed into law by the Minister of Transport.</p>
<b>CAR 91</b>	<p>Civil Aviation Rule Part 91 – Outlines the general operating and flight rules, visual flight rules (VFRs), instrument flight rules (IFRs) and other requirements to operate aircraft in New Zealand airspace.</p> <p>See consolidation documents issued via <a href="#">CAA website</a> latest date 5 April 2025.</p>
<b>CAR 93</b>	<p>Civil Aviation Rule Part 93 - Stipulates the special operating traffic rules and noise abatement procedures around certain aerodromes in New Zealand including for AIAL. These rules are in addition to the rules for aerodrome traffic prescribed in Part 91. It includes details of the Auckland noise abatement area (93.63), Departure (93.59) and Approach (93.61) noise abatement procedures and procedures that apply when using the existing AIAL runway between the hours of 2300 and 0600 by pilots of turbo-jet or turbo-fan powered aeroplanes (93.65).</p> <p>See latest consolidation document, 5 April 2025 via <a href="#">CAA website</a>.</p>
<b>CASPER</b>	<p>A Dutch company that specialises in easy-to-use aviation noise and operations monitoring solutions for airports worldwide. It provides AIAL with some noise monitoring equipment and an online flight monitoring system so members of the public are able to view the aircraft using Auckland Airport, and make a complaint/ enquiry about aircraft noise.</p>

	<p>The CASPER tracking system combines information from air traffic control radar and the airport’s noise and operations monitoring system to give an accurate picture of air traffic movements.</p> <p>Information first becomes available 25 minutes after flight movements have occurred, to maintain aviation security and ensure accurate information has been processed.</p> <p>The information remains online for public use for 30 days.</p> <p>Noise concerns or enquiries are submitted via Casper located at <a href="https://flighttracking.casper.aero/akl/">https://flighttracking.casper.aero/akl/</a>.</p>
<b>Community Representatives</b>	<p>A membership position on the ANCCG filled by members of the community.</p> <p>Under the AUP Designation 1100, three members are appointed to the ANCCG. Two community representatives must live within the Area of Benefit.</p>
<b>Control Tower</b>	<p>An elevated facility for air traffic control in the vicinity of an airport, so controllers can view the extremities of the airfield.</p>
<b>D</b>	
<b>Daytime</b>	7.00am to 10.00pm as established in NZS 6805: 1992.
<b>dB</b>	<p>Decibel - The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of <math>P_r=20 \mu\text{Pa}</math> i.e. <math>\text{dB} = 20 \times \log(P/P_r)</math>.</p> <p>Decibels are widely used to measure how loud a sound is as the information is vital to safeguard against ear damage and prevent noise pollution.</p>
<b>dBA</b>	<p>The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.</p>
<b>Designations 1100, 1101 and 1102</b>	<p>The Airport’s designations providing for activities for the operation of Auckland Airport (1100 and 1101) and specifying the Obstacle Limitation Surfaces, runway end protection areas, and restrictions on non-aeronautical ground lights (1102). See <a href="#">Designation Schedule - AIAL</a></p> <p>Designation 1100 sets out noise performance criteria and noise management obligations for the Airport to comply with. The ANCCG Terms of Reference are included as Attachment A to Designation 1100.</p> <p>Condition 5(d) of Designation 1100 requires AIAL to undertake the following:</p> <ul style="list-style-type: none"> <li>• Monitor noise from aircraft operations at a minimum of three locations associated with the existing runway which are as near as practicable to the boundary of the HANA to demonstrate that the Day/Night level of 65 dB <math>L_{dn}</math> is not exceeded outside the HANA</li> <li>• Use recognised aircraft noise modelling software and noise monitoring data to calculate whether the noise from aircraft operations exceeds 60 dB <math>L_{dn}</math> anywhere outside the HANA and the MANA</li> <li>• Calculate noise levels to ensure compliance with Condition 10 of the Designation relating to the Noise Mitigation Programme.</li> </ul> <p>Condition 13(b) requires the airport to monitor, calculate and report on the noise levels from engine testing activities and Condition 9(c) requires the airport to report on the noise complaints it receives.</p>

<b>DMAP</b>	<p>Divergent Missed Approach Protection System. These are a set of air traffic management procedures aimed at enhancing flight safety and efficiency for air travellers. Under the new DMAPS system for AKL, missed approach procedures (MAP) and departing jet flight paths (Jet SID) are now separate. Departing jets continue to climb straight ahead, while planes that miss their approach turn 30 degrees north of the centreline.</p> <p>See <a href="#">Managing Aircraft Noise</a>.</p>
<b>E</b>	
<b>Engine testing noise</b>	<p>Is measured and managed separately to aircraft operations (arrivals/departures) as it has a different character. The noise limit for in situ engine testing operations is 55 dB <math>L_{dn}(7 \text{ day rolling average})</math> with a 75 dB <math>L_{Amax}</math> applicable from 10.00pm to 7.00am. Engine testing noise at AIAL must comply with the noise limit within the identified area shown in Figure 1 attached to Designation 1100.</p>
<b>F</b>	
<b>FANC</b>	<p>Future Aircraft Noise Contours – refers to each of the long term predicted noise contours shown on the Future Aircraft Noise overlay maps in <a href="#">Appendix 19 of the AUP</a>. Note this is an AUP term specific to managing noise at Auckland Airport.</p>
<b>FIR</b>	<p>Flight Information Region – Airways controls all domestic and international air traffic travelling within NZ’s FIR, which totals 30 million square kilometres - one of the largest areas of airspace in the world.</p> <p>The <b>NZ domestic FIR</b> covers the entire country and surrounding coastline with both 'controlled' and 'uncontrolled' airspace.</p> <p>The <b>Auckland Oceanic FIR</b> covers 26 million square kilometres of the Pacific and Tasman Oceans, extending from the South Pole to 5 degrees south of the equator. Airways is responsible for aircraft flying between 24,500 feet and 46,000 feet in this sector.</p> <p>Within the FIRs, there are also areas of uncontrolled airspace, where (light) aircraft are not separated by a controller but receive information and advice to ensure they can conduct their flights safely.</p> <p>See Airways website <a href="#">“The airspace we control”</a></p>
<b>FMC</b>	Flight Management Computer.
<b>FMS</b>	Flight Management System.
<b>G</b>	
<b>GA</b>	General Aviation.
<b>GANP</b>	<p>Global Air Navigation Plan [ICAO] - is the strategy to achieve a global interoperable air navigation system offering safe, secure and efficient air transport for people and goods worldwide, while limiting the impact of aviation on the environment. The GANP serves as a worldwide reference to transform the air navigation system in an evolutionary and inclusive manner so that no State or Stakeholder is left behind.</p> <p>See <a href="#">GANP web portal</a></p>

<b>GNSS</b>	<p>Global Navigation Satellite System - A satellite navigation system with global coverage. Examples include the United States Global Positioning System (<a href="#">GPS</a>) and the Russian <a href="#">GLONASS</a>. The European Union Agency for the Space Programme (EUSPA) has developed <a href="#">Galileo</a> an independent civilian system, while China's <a href="#">BeiDou</a> system became fully operational in 2020.</p> <p>Satellite systems such as GPS can provide navigation information to aircraft systems to allow navigation without ground based systems.</p>
<b>GPS</b>	<p>Global Positioning System. GPS is the only GNSS used for aviation in New Zealand. <a href="#">GPS</a> is owned by the U.S. government and is operated and maintained by the U.S. Air Force.</p>
<b>H</b>	
<b>HANA</b>	<p>High Aircraft Noise Area - the area that experiences (either currently or by 2044) noise levels of 65+ dB L<sub>dn</sub>, as mapped under the AUP. Noise from aircraft operations shall not exceed a noise limit of 65 dB L<sub>dn</sub> anywhere outside the HANA.</p> <p>Note this is an AUP term specific to managing noise at Auckland Airport.</p>
<b>I</b>	
<b>IATA</b>	<p>International Air Transport Association was founded in 1945 and is the trade association for the world's airlines, representing around 350 airlines or 80% of global air traffic. It supports many areas of aviation activity and helps formulate industry policy on critical aviation issues.</p> <p>See <a href="#">IATA website</a></p>
<b>ICAO</b>	<p>International Civil Aviation Organization - a specialised agency of the United Nations responsible for the safe and orderly development of the world's aviation industry. It was established in 1944 to manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention). ICAO works with the Convention's 193 Member States and industry groups to reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable and environmentally responsible civil aviation sector.</p> <p>ICAO is not an international aviation regulator, its standards never supersede the primacy of local and national regulatory requirements which are enforced by sovereign states and must be legally adhered to by air operators.</p> <p>See <a href="#">ICAO website</a></p>
<b>IFR</b>	<p>Instrument Flight Rules. IFRs are established for aircraft that fly and navigate by reference to instruments in the cockpit. IFR-classified aircraft can operate in all flyable weather conditions day or night and within clouds. IFR-classified aircraft can also fly using visual references outside the cockpit (horizon, buildings, flora etc.) this may be done when they are close to an airport and positioning to land. Flights using a SMART Approach flight path operate under IFRs using cockpit instruments.</p> <p>See <a href="#">Final Smart Approach Report 2018</a> p.18 for in 2015-2016 Yellow U23 SMART Approach Flight Path Trial.</p>
<b>ILS</b>	<p>Instrument Landing System - an antenna array based at the airport that provides pilots with accurate vertical and horizontal guidance during an approach to land.</p>

<b>Industry Associations</b>	<p>The aviation industry has many associations including:</p> <ul style="list-style-type: none"> <li>• Aviation Industry Association of New Zealand Inc. (AIA)</li> <li>• Board of Airline Representatives of New Zealand (BARNZ)</li> <li>• New Zealand Airports Association (NZAA)</li> <li>• New Zealand Airline Pilots' Association (NZALPA)</li> <li>• New Zealand Aviation Federation Inc. (NZAF)</li> </ul>
<b>Industry Representative</b>	<p>Under the AUP Designation 1100, one ANCCG member is appointed to provide representation from industry/business that use the facilities of the airport e.g. freight forwarder or manufacturer etc.</p>
<b>INM</b>	<p>Integrated Noise Model ("INM") was referenced in a legacy (pre-November 2019) version of Designation 1100. Aircraft noise modelling software is frequently updated and refined, so referencing a specific model was identified as inappropriate and deleted. INM was a computer model developed by the US Federal Aviation Authority (FAA) to evaluate aircraft noise impacts in the vicinity of airports. In May 2015 the FAA replaced it with the Aviation Environmental Design Tool (AEDT) software system.</p>
<b>ISO 20906: 2009</b>	<p>International Organization for Standardization (ISO) standard for undertaking unattended monitoring of aircraft sound in the vicinity of airports.</p> <p>See <a href="#">ISO website</a> for latest version</p>
<b>J</b>	
<b>Jet aircraft</b>	<p>An aircraft powered by an engine that develops thrust by a turbofan that bypasses air around the core of the engine, ejecting a jet of gaseous combustion products. Jets rely on encased turbine engines to move the aircraft forward and do not have propellers. Passenger jets that are used at AIAL include for example, the Airbus A380, A320/321neo, A350, Boeing 777-200/300ER, Boeing 787-9 Dreamliner, Boeing 737.</p>
<b>K</b>	
<b>kt</b>	<p>Knot/s. Is the standard unit of speed in aviation since its 20<sup>th</sup> century beginning when a lot of terms and measures were borrowed from the marine sector. One knot (1kt) is equal to one nautical mile per hour (1Nm/h) and it has been defined to be equal to 1.852km/h in terms of SI units (International System of Units). There are three distinct types of airspeeds (Indicated, Calibrated and True) and they are all measured in 'knots'. Airspeed is fundamentally different to ground speed which is the sum of airspeed and wind speed.</p>
<b>L</b>	
<b>L<sub>Aeq(t)</sub></b>	<p>The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level.</p> <p>The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10.00pm and 7.00am.</p>
<b>L<sub>Amax</sub> or L<sub>max</sub></b>	<p>The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.</p>

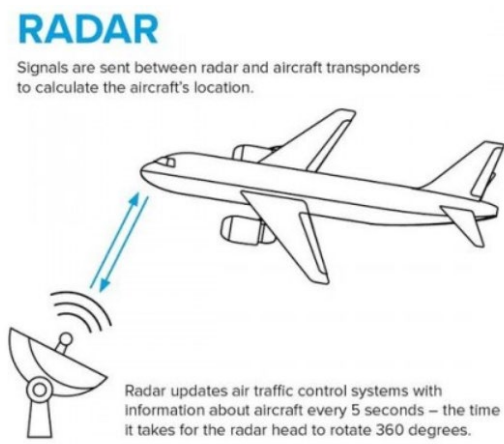
<b>L<sub>dn</sub></b>	The day night noise level which is calculated from the 24 hour L <sub>Aeq</sub> with a 10 dB penalty applied to the night-time (2200-0700 hours) L <sub>Aeq</sub> . Note L <sub>dn</sub> is the noise measurement adopted in the AUP in relation to measuring aircraft noise relating to Auckland Airport.
<b>LOSGA</b>	 <p>A navigational waypoint, similar in function to an intersection, in the sky. It sits 5 nautical miles from the Airport and is above Mt Albert Road and Dominion Road. It is a joining point for aircraft arriving from the north and west.</p>
<b>M</b>	
<b>MANA</b>	<p>Moderate Aircraft Noise Area - the area that experiences (either currently or by 2044) noise levels between 60 dB L<sub>dn</sub> and 65 dB L<sub>dn</sub>. Noise from aircraft operations shall not exceed the noise limit of 60 dB L<sub>dn</sub> anywhere outside the HANA and MANA.</p> <p>Note this is an AUP term specific to managing noise at Auckland Airport.</p>
<b>Mana whenua Representative</b>	Under the AUP Designation 1100, there are two mana whenua representatives on ANCCG.
<b>MAP</b>	<p>Missed Approach Procedure - A go-around (also sometimes referred to as an aborted landing), is a standard, safe and well-practised manoeuvre, initiated by the pilot or an air traffic controller, that involves an aircraft discontinuing its approach to the runway when landing.</p> <p>See <a href="#">Managing Aircraft Noise</a>.</p>
<b>MLAT</b>	<p>Multilateration - is a more recent ground-based surveillance technique that is used in the airspace around Queenstown Airport, as radar is impracticable in the terrain.</p> <p>A number of ground stations interrogate and receive replies from aircraft SSR (Secondary Surveillance Radar) transponders. The system calculates the position of the aircraft using the time difference between the arrival of a reply at four or more ground stations and presents a display of the traffic on monitors in an Air Traffic Control Tower.</p> <p>Multilateration targets are typically updated once per second, compared with five-second intervals for radar targets. MLAT systems that cover broader areas are known as Wide Area Multilateration (WAM) and covers most of Otago and Southland.</p> <p>See <a href="#">Surveillance on NSS website</a> and MoT <a href="#">National Airspace and Air Navigation Plan 2014</a>, pp25-29</p>
<b>N</b>	
<b>National Airspace Policy (2012)</b>	The Government's response to the GANP which ICAO issued in 2007. It recognised the step-change from land-based navigational aids to performance-based navigation (PBN) technology used in the SMART Approach flight paths.

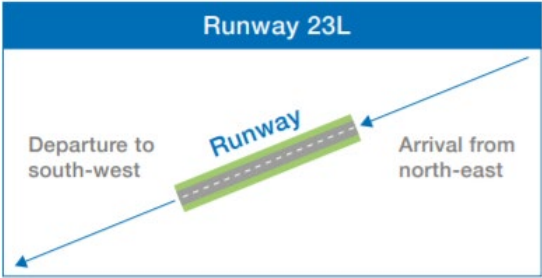
<p><b>New Southern Sky (NSS) - National Airspace and Air Navigation Plan (2014)</b></p>	<p>The programme to implement the National Airspace and Air Navigation Plan and modernise NZ's airspace and air navigation system. It sets out the practical steps required to make an effective transition to the use of next generation technologies, manage airspace as demand increases, and to enhance aviation safety over ten years. It is a multi-agency programme led by the CAA. Members of the NSS Working Group such as Airways, the Ministry of Transport, MetService, Aeropath and airlines lead various work streams.</p> <p><a href="#">See NSS website</a></p>
<p><b>Night time</b></p>	<p>10.00pm to 7.00am as established in NZS 6805: 1992.</p> <p>11.00pm to 6.00am (traffic density timing, see Night time restriction explanation for Auckland).</p>
<p><b>Night time restriction - Auckland</b></p>	<p>There is no night time restriction on flights using the existing Auckland Airport runway. It is able to operate 24/7. However there are noise abatement procedures provided for under CAR Part 93 between 11.00pm and 6.00am.</p> <p>Once constructed and operational, under Condition 4 of the AUP Designation 1100, the Northern Runway will have night time restrictions in place. Non-Jet and Jet aircraft between the hours of 10.00pm and 7.00am, will not be permitted to depart to or arrive from the east except in limited circumstances. That means Northern Runway flights during those hours must arrive and depart over the Manukau harbour i.e. no night flights / noise effects over Papatoetoe, Ōtara or Ormiston. Further, under Condition 6 of the AUP Designation 1100, for the first five years noise from aircraft operations shall not exceed 58.5 dBA Ldn at State Highway 20 and the southernmost part of Naylor's Drive, and wide-body jet (Code D, E, and F) aircraft shall not depart to the west between 22:00 and 07:00.</p>
<p><b>Night STARS</b></p>	<p>In mid-2018 Airways, BARNZ and AIAL proposed new night time Standard Terminal Arrival Routes. Rather than tracking over the city, a new northern approach would cross over Whangaparaoa and then track down the Gulf off the North Shore. Likewise a new southern approach would cross over Franklin before turning left. The new approaches would overfly 65% fewer people than existing routes and the Person Event Index (PEI) would reduce by 50%. Consultation with Local Boards occurred and flying commenced 1 September 2018 with reduced night overflights of the central suburbs/Takapuna areas and higher altitude overflying for Stillwater/Pukekohe areas.</p> <p>See <a href="#">Runway 23L Night Arrival Procedures</a> a presentation to ANCCG, 5 Jun 2018</p>
<p><b>NM</b></p>	<p>Nautical Miles. Are used to measure distance travelled through the water. A nautical mile is slightly longer than a mile on land. Using latitude and longitude coordinates is more practical for long-distance travel, where the curvature of the Earth becomes a factor in accurate measurement. Air and space travel also use latitude and longitude for navigation and nautical miles to measure distance.</p>
<p><b>NMP</b></p>	<p>Noise Management Plan – as described in Condition 9 of the AUP Designation 1100.</p>
<p><b>Noise</b></p>	<p>A sound that is unwanted by, or distracting to, the receiver.</p>

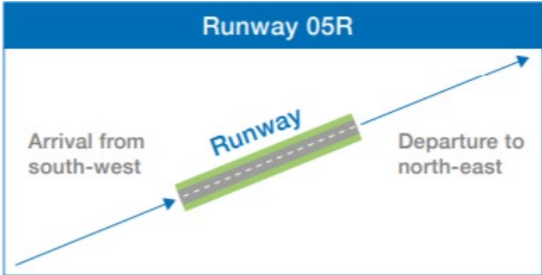
<b>Noise abatement procedures</b>	<p>CAA Noise Rules (CAR Part 93) do provide for noise abatement procedures at Auckland Airport. Between 11.00pm and 6.00am when there is a tailwind less than 5 knots and air traffic conditions allow, flights can takeoff (depart) to the west and can land (arrive) from the west i.e. over the Manukau Harbour. This is subject to ATC operational requirements. [93.65]</p> <p>Pilots of a turbo-jet or turbo-fan powered aeroplane shall not operate over the Auckland noise abatement areas at an altitude of less than 5000 feet QNH (height above mean sea level) except during take-off climb or during during visual approach to Runway 23 [93.63].</p>
<b>Noise Complaint Procedure</b>	<p>The process for making a complaint about aircraft noise at Auckland Airport can be found on AIAL's website, see: <a href="https://corporate.aucklandairport.co.nz/corporate-responsibility/managing-aircraft-noise">https://corporate.aucklandairport.co.nz/corporate-responsibility/managing-aircraft-noise</a></p> <p>A person can make a complaint using the on-line Casper flight tracking system at <a href="https://flighttracking.casper.aero/akl/">https://flighttracking.casper.aero/akl/</a></p> <p>Click the open envelope icon to 'submit complaint' on left hand menu or call 09 256 8133 or freephone 0800 466473 (0800 4 NOISE) anytime.</p>
<b>Noise Reduction Programme OR NRP</b>	<p>Designation 1100 of the AUP requires Auckland Airport to provide noise reduction packages to eligible properties within the HANA and MANA which are exposed to aircraft noise exceeding 60 dB L<sub>dn</sub> in the coming year. The Noise Reduction Programme (formerly known as the Noise Mitigation Programme) is the system by which noise reduction packages are advertised and offered to eligible properties, following the conditons set out in the designation.</p> <p>See <a href="#">Noise Reduction Programme   Auckland Airport</a></p>
<b>Noise Reduction programme monitoring</b>	<p>AIAL is required to monitor implementation of the Noise Reduction Programme as set out in Condition 10 of Designation 1100 and provide a written report to Auckland Council setting out its findings in detail at six monthly intervals each year.</p>
<b>Non-jet aircraft</b>	<p>Any aircraft that is not a turbo-jet or a turbo-fan powered aircraft. For the avoidance of doubt turbo-prop aircraft are non-jet aircraft.</p> <p>See <a href="#">Designation 1100, Conditions (1)</a> p3</p>
<b>Northern Runway (RWY 05L/23R)</b>	<p>The future runway that will be located to the north of the Airport's existing terminal facilities with an operational length of 2,983 metres once constructed.</p>
<b>NoR</b>	<p>Notice of Requirement – As a Requiring Authority under the Resource Management Act (RMA) 1991, the AIAL proposed alterations to the AUP Designations 1100 and 1102 to provide for a longer and realigned Northern Runway at Auckland Airport. That NoR was confirmed on 18 November 2019, with the altered designations becoming operative in the AUP.</p>
<b>NZ Airports Association Inc.</b>	<p>The industry association for NZ's airports and related businesses. It is a not-for-profit organisation with members that operate across 42 airports.</p> <p>See <a href="#">nzairports website</a></p>

<b>NZALPA</b>	<p>New Zealand Airline Pilots' Association is an industrial union of workers and professional association representing over 2,600 pilots and air traffic controllers and flight service operators employed in NZ.</p> <p>See <a href="#">NZALPA website</a></p>
<b>New Zealand Aviation Federation Inc. (NZAF)</b>	<p>Organisation that brings together member associations across all the sectors of General Aviation to exchange ideas and issues that can be collectively debated and then presented to the relevant regulating authority. It collectively forms the largest single Aviation lobby organisation in NZ. NZAF is represented on all the sector reference groups and advisory panels within the Civil Aviation Authority.</p> <p>See <a href="#">aviation federation website</a></p>
<b>NZS 6805: 1992</b>	<p>NZ Standard 6805 "<i>Airport Noise Management and Land Use Planning</i>" was developed for use by territorial or regional authorities to control airport noise. It is used to ensure people living close to an airport or aerodrome are properly protected from the effects of aircraft noise, while also recognising the need to be able to operate an airport efficiently.</p> <p>The Standard uses a system in which a limit is set for the average daily amount of aircraft noise exposure that is permitted in the vicinity of an airport.</p>
<b>O</b>	
<b>OCB</b>	<p>Outer Control Boundary – Term set out in the NZS 6805: 1992. For Auckland Airport that equates to the boundary of the ANNA where noise levels must not exceed 55 dB L<sub>dn</sub>.</p>
<b>Operational length</b>	<p>Is the length of Runway available and suitable for the ground run of an aircraft taking off, in accordance with the Civil Aviation Advisory Circular 139-6 Revision 5 dated 9 August 2016 called the "Take-Off Run Available" or "TORA".</p> <p>See <a href="#">Designation 1100, Conditions (1)</a> p3</p>

P	
<b>PBN</b>	<p>Performance-based Navigation – uses GPS technology so aircraft can follow flight paths to a far greater degree of accuracy.</p> <p>PBN procedures allow curved approach paths to runways and the ability for aircraft to be established on the extended runway centreline much closer to the runway than is possible using a ground-based ILS. These shorter approach paths result in fuel and carbon emission savings and potentially fewer residents being over flown if they can be designed to overfly commercial or open space areas.</p> <p>PBN also allows constant descent when aircraft are on final approach to a runway, allowing aircraft to remain at higher altitudes for longer and engines to run at lower power settings. PBN technology almost eliminates the traditional step-down approach, where aircraft descend in steps separated by intervals of level flight and higher engine thrust (see Figure below).</p> <div style="text-align: center;"> <p>Continuous Descent Final Approach (CDFA)</p> <p>3 Degrees</p> <p>Conventional Approach</p> </div> <p>PBN was first used at Auckland Airport in 2012. A small number of PBN approach paths were implemented in Auckland in 2015 following a trial known as the ‘SMART Trial’ with a further PBN approach going live in 2019 after trials in 2016/17. Ongoing trials of new PBN approach paths occur from time to time.</p>
<b>PEI</b>	<p>The "Person-Events Index" was developed by the Australian Department of Transport and Regional Services, as a means of assessing an airport’s noise impact on a population.</p> <p>The PEI allows the total noise load generated by an airport to be computed by summing, over the exposed population, the total number of instances where an individual is exposed to an aircraft noise event above a specified noise level over a given time period.</p> <p>The index has deliberately been expressed in a form which gives non-experts (eg decision-makers &amp; community representatives) some feel for the magnitude of the noise load.</p> <p>The PEI and the related Average Individual Exposure (AIE) metric are useful for considering how noise is shared around or concentrated within a local population.</p> <p>See DOTARS (2000, Mar) <a href="#">Discussion Paper: Expanding Ways to Describe and Assess Aircraft Noise</a>, pp40-44</p>
<b>Permanent Noise Monitor</b>	<p>Mandatory noise monitor deployed by Auckland Airport as per condition 5D of its Designation 1100. Permanent monitors are fixed installations which can be in place for many years.</p>

Q	
R	
<b>Radar</b>	<p>A radio detection device which provides information on range, azimuth and/or elevation of objects. Current technologies include:</p> <ul style="list-style-type: none"> <li>• Primary surveillance radar (PSR) transmits a radio signal that is reflected back to the radar by aircraft. The range and bearing of each aircraft detected is presented to the air traffic controller. PSR cannot identify aircraft, and does not rely on aircraft systems.</li> <li>• Secondary surveillance radar (SSR) not only detects and measures the range and bearing of aircraft, but also requests additional information from the aircraft itself, such as its identity and altitude. It relies on aircraft being equipped with a mode A/C transponder. Transponders are mandatory in New Zealand controlled airspace. See <a href="#">NSS website, Current Technologies</a></li> </ul> <p><i>How Radar works</i></p> <p>Source-<a href="#">New Southern Sky website</a></p> 
<b>RCL</b>	Runway Centre Line – shows the physical centre of the runway to help guide aircraft during takeoff and landings. The centreline consists of a line of uniformly spaced stripes and gaps.
<b>REPA</b>	Runway End Protection Areas – are areas in which, statistically, there is a risk of aircraft landing or takeoff incidents. It is desirable that the risk from such a hazard be reduced by limiting the range of activities permitted in the REPAs and the number of persons that can be exposed. AUP Designation 1102 sets out requirements intended to restrict development within the REPA in order to control the number of people on the ground at any one location and time.
<b>Residual sound</b>	<p>Ambient noise remaining when specific noise (such as aircraft noise) is suppressed.</p> <p>NZS 6805: 1992 definition - The total sound remaining at a given position in a given situation when the specific sounds under consideration are suppressed or are an insignificant part of the total (ambient) sound.</p>

<p><b>RNAV</b> (<i>pronounced</i> “AR-NAV”)</p>	<p>Area Navigation is a method of navigation that allows an aircraft to choose any course within a network of ground-based navigation beacons, or GNSS aids, or a combination, rather than navigating directly to and from the beacons. This can reduce flight distances, reduce congestion, and allow flights into airports without ground-based navigation beacons.</p>
<p><b>RNP</b></p>	<p>Required Navigation Performance - is a type of PBN that allows an aircraft to fly a specific path between two 3-dimensionally defined points in space. RNP requires on-board performance monitoring and alerting so that the pilot is notified early of any reduced satellite coverage, and is therefore a more robust system.</p>
<p><b>RWY</b></p>	<p>Runway. Means a defined rectangular area on a land aerodrome prepared for the landing and takeoff of aircraft.</p> <p>The existing AIAL runway located to the south of the Airport’s terminal facilities has an operational length of 3,635 metres.</p> <p>See <a href="#">Designation 1100, Conditions (1)</a> p.3</p> <p>The runway is orientated north-east to south-west. Aircraft must take off and land into the wind.</p> <p>See <a href="#">SMART Approach Flight Path Trial, Final Report</a> p 48</p>
<p><b>RWY 23L</b></p>	<p>The existing AIAL runway’s mode of operation is called either “Runway 23L” or “Runway 05R”, representing the abbreviated magnetic compass direction of the runway. In Auckland, the prevailing wind is from the south west and under these conditions aircraft use Runway 23L, where departing aircraft take off towards the west over the Manukau Harbour, and arriving aircraft land on the eastern end of the runway, overflying Papatoetoe.</p> <p><i>Mode of operation in Westerly Wind Conditions – flights arrive from North East and depart to South West</i></p>  <p>See <a href="#">SMART Approach Flight Path Trial, Final Report</a> p 48</p>

<p><b>RWY 05R</b></p>	<p>Existing AIAL runway. When the wind direction switches to easterly, the runway direction changes and aircraft use Runway 05R, where arriving aircraft land on the western end of the runway overflying the Manukau Harbour, and departing aircraft take off to the east overflying Papatoetoe.</p> <p><i>Mode of operation in Easterly Wind Conditions – flights arrive from South West and depart to North East</i></p>  <p>See <a href="#">SMART Approach Flight Path Trial, Final Report</a> p 48</p>
<p><b>Runway naming</b></p>	<p>All runways are numbered based on the magnetic azimuth (compass bearing) in which a runway is oriented. There are 360 degrees on a compass rose. Runway numbers are determined by rounding the compass bearing of one runway end to the nearest 10 degrees and truncating the last digit, meaning runways are numbered from 1 to 36.</p> <p>A runway can normally be used in both directions, and is named for each direction separately: e.g., "Runway 05" in one direction is "Runway 23" when used in the other. The two numbers differ by 18 (= 180°).</p> <p>The "L" and "R" designate the relative position (left or right) of each runway respectively when approaching/facing its direction.</p>
<p><b>S</b></p>	
<p><b>SAF</b></p>	<p><a href="#">Sustainable Aviation Fuel</a> – synthetic aviation fuel derived from renewable sources e.g. animal waste, fats/oils, forest/wood residues, rubbish, other organic materials.</p>
<p><b>SAR</b></p>	<p>Search and Rescue.</p>
<p><b>SARPS</b></p>	<p>Standards and Recommended Practices [ICAO].</p>
<p><b>SEL or L<sub>AE</sub></b></p>	<p>Sound Exposure Level - The sound level of one second duration which has the same amount of energy as the actual noise event measured. Usually used to measure the sound energy of a particular event, such as a train pass-by or an aircraft flyover.</p>

<p><b>SIDs and STARs</b></p>	<p>Routes that guide aircraft from and to runways are known as Standard Instrument Departures (SIDs) and Standard Terminal Arrival Routes (STARs).</p> <p>SIDs and STARs have specified procedures, including directional and height limits which pilots are required to observe when flying out of and into a destination (Auckland), unless instructed otherwise by Airways.</p> <p>While flight paths are often thought of and shown as a single lines on a map, it is usually not possible for all aircraft following a traditional flight path to fly precisely along the same line. In practice individual flight paths tend to occur within flight corridors that can be a number of kilometres wide. The exception to this is when performance-based navigation (PBN) paths (see SMART Approach Flight Paths) are used. There is considerable variation in the flight paths aircraft fly day-to-day, for reasons including weather, airspace congestion and activity at other aerodromes (e.g. Ardmore and Whenuapai).</p> <p>See <a href="#">SMART Flight Path Trial Final Report</a></p> <p>See “<a href="#">Auckland flight paths</a>” on AIAL website.</p>
<p><b>SMART Approach Flight Paths</b></p>	<p>Smart Approach flight paths are technically known as Required Navigation Performance, which is a type of PBN.</p> <p>SMART Approaches use satellite-based navigation and enable aircraft to burn less fuel, emit less carbon dioxide and fly more quietly. They contribute to international aviation carbon dioxide-emission reduction proposals and are aligned with the New Zealand Government’s National Airspace and Air Navigation Plan.</p> <p>Six SMART Approach flight paths currently operate at Auckland Airport, three from the north (Green X23A, Blue X05A, Yellow U23A) and three from the south (Red Y23, Black Y05, Orange S23).</p> <p>Blue X05A and Green X23A flight paths can only be used 7.00am to 10.00pm with a maximum of 10 flights per day on each of these paths.</p> <p>Yellow U23A can only be used 7.00am to 10.00pm with a maximum of six flights per day, which may be increased to a maximum of 10 subject to certain conditions, including consultation on the proposal with the ANCCG.</p> <p>Black Y05 is available 24 hours per day uncapped.</p> <p>Orange S23 and Red Y23 can both only be used 7.00am to 10.00pm with no cap on volumes.</p> <p>See <a href="#">SMART Approach Flight Path Trial, Final Report</a> See “<a href="#">Flying Smarter</a>” on AIAL website.</p> <p>See Orange 23 Smart Trial Results and Memo to 13 Dec 2021 ANCCG meeting, <a href="#">Orange Trail Track Final Report, 29 Nov 2021</a></p>
<p><b>Surveillance</b></p>	<p>Surveillance involves monitoring the relative position of aircraft in flight so Air Traffic Control can ensure the right amount of separation to prevent collisions. The transition to satellite-based surveillance involves the use of ADS-B technology. Other current technologies include Radar (PSR and SSR) and Multilateration (MLAT).</p> <p>See <a href="#">Surveillance on NSS website</a></p>

T	
<b>TAIC</b>  <i>Te Kōmihana Tirotiro Aituā Waka</i>	<p>Transport Accident Investigation Commission is an independent Crown Entity responsible to the Minister of Transport. TAIC’s principal purpose is to determine the circumstances and causes of [selected aviation, marine, and rail] accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.</p> <p>See <a href="#">TAIC website</a> and <a href="#">TAIC Act 1990</a>, section 4</p>
<b>Taxiway</b>	A defined path on an aerodrome for the taxiing of aircraft, intended to provide a link between one part of the aerodrome and another.
<b>Temporary Noise Monitor</b>	Voluntary noise monitor deployed by Auckland Airport. Temporary noise monitors are set up to be easily movable and expected to be used in the short term.
<b>TORA</b>	Take-off run available – see Operational length.
<b>Turboprop aircraft</b>	An aircraft powered by thrust from a propeller that is turned by a gas turbine engine. Turboprop aircraft are commonly used for regional domestic services in NZ and include aircraft such as the ATR-72 500/600, Dash 8-Q300/400 and smaller aircraft such as Beech 1900D, Cessna Caravan, Britten Norman Islander.
U	
V	
<b>VFR</b>	<p>Visual Flight Rules. VFRs are established for aircraft that fly and navigate by visual references outside the cockpit. VFR aircraft usually fly in clear skies during the day, not within clouds or in adverse weather, and not normally at night.</p> <p>Specific details for each airport’s flight rules are published in New Zealand’s Aeronautical Information Publication (AIP).</p> <p>See <a href="#">SMART Approach Flight Path Trial, Final Report</a> p 20</p>
W	
<b>WPT - Waypoint</b>	<p>A waypoint is an intermediate point or place on a route or line of travel, a stopping point or point at which course is changed. In aviation a waypoint is a specified geographical location (latitude/ longitude coordinates, altitude ignored) used to define an area navigation route or the flight path of an aircraft employing RNAV (area navigation).</p> <p>GPS-based waypoints are given an identifier that typically consists of five characters - letters, digits, or a combination of both e.g. LOSGA, ARADI, DOMRI, VIBAG, EMRAG.</p> <p>Auckland Airport has a number of standard routes (STARs and SIDs), managed by Air Traffic Control, which aircraft can take when arriving and departing. Each standard route has waypoints, much like intersections in the sky, through which aircraft may pass.</p> <p>See “<a href="#">Auckland flight paths</a>” on AIAL website</p>
X	
Y	
Z	

