SFO COMMUNITY ROUNDTABLE

# Meeting Packet
## Regular Meeting

Meeting No. 308
**Wednesday, August 2, 2017 - 7:00 p.m.**

David Chetcuti Community Room – Millbrae City Hall
450 Popular Avenue – Millbrae, CA 94030

**Note:** To arrange an accommodation under the Americans with Disabilities Act to participate in this public meeting, please call (650) 363-1853 at least 2 days before the meeting date.

# AGENDA

**1. Call to Order / Roll Call / Declaration of a Quorum Present**
*ACTION*
Elizabeth Lewis, Roundtable Chairperson

**2. Introduction, Roundtable Technical Consultant – HMMH (Justin Cook)**
*INFORMATION*
Elizabeth Lewis, Roundtable Chairperson

**3. Public Comments on Items NOT on the Agenda**
*INFORMATION*
*Speakers are limited to two minutes. Roundtable members cannot discuss or take action on any matter raised under this item.

CONSENT AGENDA ITEMS

All items on the Consent Agenda are approved/accepted in one motion. A Roundtable Representative can make a request, prior to action on the Consent Agenda, to transfer a Consent Agenda item to the Regular Agenda. Any items on the Regular Agenda may be transferred on the Consent Agenda in a similar manner.

**4. Review of Roundtable Regular Meeting Overview for June 7, 2017**
*ACTION*
1. June 7, 2017 Regular Meeting Overview pg. 13

REGULAR AGENDA

**5. Review of Airport Director's Reports**
*ACTION*
Bert Ganoung, Manager - Aircraft Noise Abatement Office

1. May 2017 Airport Director's Report pg. 51
2. May 2017 Airport Director's Report (old format) pg. 57
3. June 2017 Airport Director's Report pg. 65
4. June 2017 Airport Director's Report (old format) pg. 71

REGULAR AGENDA (continued)

## 6. Review of SFO FlyQuiet Report for Q2 2017

*INFORMATION*
Bert Ganoung, Manager - Aircraft Noise Abatement Office

- FlyQuiet Report for Q2 2017 pg. 79
- FlyQuiet Report for Q2 2017 (presentation slides) pg. 93

## 7. Airport Director's Comments

*INFORMATION*
Ivar Satero, Director – San Francisco International Airport

## 8. Status, FAA Initiative Response

*INFORMATION/ACTION*
Elizabeth Lewis, Roundtable Chairperson

- FAA Initiative, Phase Two Publication, July 25, 2017 pg. 149

## 9. Information, Letter from Congressional Representatives Eshoo, Panetta, and Khanna, Re South Bay Airport Roundtable Formation

*INFORMATION*
Elizabeth Lewis, Roundtable Chairperson

- Letter to Cities Association of Santa Clara County pg. 17

## 10. Update from the Roundtable's Legislative Subcommittee

*INFORMATION*
Elizabeth Lewis, Roundtable Chairperson

- Memorandum/Summary, Follow-up materials pg. 20

## 11. Letter to Senators Feinstein and Harris, Re FAA Reauthorization

*INFORMATION*
Elizabeth Lewis, Roundtable Chairperson

- Letter to Senators Feinstein and Harris pg. 25

## 12. Consideration and approval of the Roundtable's 2017-2018 Work Plan

*ACTION*
James Castañeda, Roundtable Chairperson
Justin Cook, Roundtable Technical Consultant

- Memorandum and Work Plan pg. 33

## 13. Introduction of Datasheet for Quarter Monitoring Report for Portola Valley and Woodside

*INFORMATION*
Bert Ganoung, Manager - Aircraft Noise Abatement Office

1. Portola Valley Datasheet for Q1 Noise Aircraft Noise Monitoring pg. 107
2. Portola Valley Q1 Noise Aircraft Noise Monitoring Report pg. 111
3. Woodside Datasheet for Q1 Noise Aircraft Noise Monitoring pg. 127
4. Woodside Q1 Noise Aircraft Noise Monitoring Report pg. 131

OTHER MATTERS

**14. Airport Noise Briefing**
*INFORMATION*
Justin Cook, Roundtable Technical Consultant

**12. Member Communications / Announcements**
*INFORMATION*
Roundtable Members and Staff

**13. Adjourn**
*ACTION*
Elizabeth Lewis, Roundtable Chairperson

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Correspondences



Additional Resources

SFO COMMUNITY ROUNDTABLE

# Welcome

The Airport/Community Roundtable is a voluntary committee that provides a public forum to address community noise issues related to aircraft operations at San Francisco International Airport. The Roundtable encourages orderly public participation and has established the following procedure to help you, if you wish to present comments to the committee at this meeting.

- You must fill out a Speaker Slip and give it to the Roundtable Coordinator at the front of the room, as soon as possible, if you wish to speak on any Roundtable Agenda item at this meeting.
- To speak on more than one Agenda item, you must fill out a Speaker Slip for each item.
- The Roundtable Chairperson will call your name; please come forward to present your comments.

The Roundtable may receive several speaker requests on more than one Agenda item; therefore, each speaker is limited to two (2) minutes to present his/her comments on any Agenda item unless given more time by the Roundtable Chairperson. The Roundtable meetings are recorded. Copies of the audio file can be made available to the public upon request. Please contact the Roundtable Coordinator for any request.

Roundtable Meetings are accessible to people with disabilities. Individuals who need special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the Agenda, Meeting Notice, Meeting Packet, or other writings that may be distributed at the meeting, should contact the Roundtable Coordinator at least two (2) working days before the meeting at the phone or e-mail listed below. Notification in advance of the meeting will enable Roundtable staff to make reasonable arrangements to ensure accessibility to this meeting.

**AIRPORT/COMMUNITY ROUNDTABLE OFFICERS & STAFF**

Chairperson:

ELIZABETH LEWIS
Representative, Town of Atherton
elewis@ci.atherton.ca.us

Vice-Chairperson:

MARK ADDIEGO
Representative, City of South San Francisco
Mark.Addiego@ssf.net

Roundtable Coordinator:

JAMES A. CASTAÑEDA, AICP
County of San Mateo
Planning & Building Department
jcastaneda@sforoundtable.org

SFO COMMUNITY ROUNDTABLE

# About the Roundtable

**The Airport/Community Roundtable was established in May 1981, by a Memorandum of Understanding (MOU), to address noise impacts related to aircraft operations at San Francisco International Airport (SFO).** The Airport is owned and operated by the City and County of San Francisco, but it is located entirely within San Mateo County. This voluntary committee consists of 22 appointed and elected officials from the City and County of San Francisco, the County of San Mateo, and several cities in San Mateo County (see attached Membership Roster). It provides a forum for the public to address local elected officials, Airport management, FAA staff, and airline representatives, regarding aircraft noise issues. The committee monitors a performance-based aircraft noise mitigation program, as implemented by Airport staff, interprets community concerns, and attempts to achieve additional noise mitigation through a cooperative sharing of authority brought forth by the airline industry, the FAA, Airport management, and local government officials. The Roundtable adopts an annual Work Program to address key issues. In 2017, the Roundtable is scheduled to meet on the first Wednesday of the following months: February, April, June, August, October and December. Regular Meetings are held on the first Wednesday of the designated month at 7:00 p.m. at **the David Chetcuti Community Room at Millbrae City Hall, 450 Poplar Avenue, Millbrae, California** unless noted. Special Meetings and workshops are held as needed. The members of the public are encouraged to attend the meetings and workshops to express their concerns and learn about airport/aircraft noise and operations. For more information about the Roundtable, please contact Roundtable staff at (650) 363-1853.

## POLICY STATEMENT

The Airport/Community Roundtable reaffirms and memorializes its longstanding policy regarding the "shifting" of aircraft-generated noise, related to aircraft operations at San Francisco International Airport, as follows:

> **"The Airport/Community Roundtable members, as a group, when considering and taking actions to mitigate noise, will not knowingly or deliberately support, encourage, or adopt actions, rules, regulations or policies, that result in the "shifting" of aircraft noise from one community to another, when related to aircraft operations at San Francisco International Airport."**
> *(Source: Roundtable Resolution No. 93-01)*

## FEDERAL PREEMPTION, RE: AIRCRAFT FLIGHT PATTERNS

The authority to regulate flight patterns of aircraft is vested exclusively in the Federal Aviation Administration (FAA). Federal law provides that:

> "No state or political subdivision thereof and no interstate agency or other political agency of two or more states shall enact or enforce any law, rule, regulation, standard, or other provision having the force and effect of law, relating to rates, routes, or services of any air carrier having authority under subchapter IV of this chapter to provide air transportation."
> *(Source: 49 U.S.C. A. Section 1302(a)(1)).*

SFO COMMUNITY ROUNDTABLE

# Member Roster

August 2017

**CITY AND COUNTY OF SAN FRANCISCO**
**BOARD OF SUPERVISORS**
Ahsha Safaí, Supervisor

**CITY AND COUNTY OF SAN FRANCISCO MAYOR'S OFFICE**
David Takashima, (Appointed)
Alternate: Edwin Lee, Mayor

**CITY AND COUNTY OF SAN FRANCISCO AIRPORT COMMISSION REPRESENTATIVE**
Ivar Satero, Airport Director (Appointed)
Alternate: Doug Yakel, Public Information Officer

**COUNTY OF SAN MATEO**
**BOARD OF SUPERVISORS**
Dave Pine, Supervisor
Alternate: Don Horsley, Supervisor

**CITY/COUNTY ASSOCIATION OF GOVERNMENTS**
**AIRPORT LAND USE COMMITTEE (ALUC)**
Adam Kelly, ALUC Chairperson (Appointed)

**TOWN OF ATHERTON**
Elizabeth Lewis, Mayor
Alternate: Bill Widmer, Council Member

**CITY OF BELMONT**
Douglas Kim, Council Member
Alternate: Eric Reed

**CITY OF BRISBANE**
Terry O'Connell, Council Member
Alternate: Madison Davis, Council Member

**CITY OF BURLINGAME**
Ricardo Ortiz, Council Member

**CITY OF DALY CITY**
Glenn Sylvester, Mayor

**CITY OF FOSTER CITY**
Sam Hindi, Council Member

**CITY OF HALF MOON BAY**
Harvey Rarback, Council Member

**TOWN OF HILLSBOROUGH**
Alvin Royse, Council Member
Alternate: Shawn Christianson, Council Member

**CITY OF MENLO PARK**
Peter Ohtaki, Council Member

**CITY OF MILLBRAE**
Ann Schneider, Council Member

**CITY OF PACIFICA**
Sue Digre, Mayor

**TOWN OF PORTOLA VALLEY**
Ann Wengert: Council Member
Alternate: Maryann Derwin, Council Member

**CITY OF REDWOOD CITY**
Janet Borgens, Council Member

**CITY OF SAN BRUNO**
Ken Ibarra, Council Member
Alternate: Rico Medina, Council Member

**CITY OF SAN CARLOS**
Matt Grocott: Council Member
Alternate: Bob Grassilli, Council Member

**CITY OF SAN MATEO**
Rick Bonilla, Council Member

**CITY OF SOUTH SAN FRANCISCO**
Mark Addiego, Council Member
Alternate: Pradeep Gupta, Council Member

**TOWN OF WOODSIDE**
Deborah Gordon, Council Member
Alternate: Thomas Shanahan, Council Member

ROUNDTABLE ADVISORY MEMBERS

**AIRLINES/FLIGHT OPERATIONS**
Captain James Abell, United Airlines
Glenn Morse, United Airlines

**FEDERAL AVIATION ADMINISTRATION**
Thann McLeod, NORCAL TRACON
Tony DiBernardo, FAA Sierra-Pacific District

**ROUNDTABLE STAFF**
James Castañeda, Roundtable Coordinator
Justin Cook, Roundtable Technical Consultant (HMMH)
Eugene Reindel, Roundtable Technical Consultant (HMMH)
Adam Scholten, Roundtable Technical Consultant (HMMH)

**SAN FRANCISCO INTERNATIONAL AIRPORT**
**NOISE ABATEMENT STAFF**
Bert Ganoung, Noise Abatement Manager
David Ong, Noise Abatement Systems Manager
Ara Balian, Noise Abatement Specialist
John Hampel, Noise Abatement Specialist
Nastasja Gjorek, Noise Abatement Specialist
William Brown, Noise Abatement Specialist
Joyce Satow, Administration Secretary

San Francisco International Airport

Aircraft Noise Abatement Office

# Glossary of common Acoustic and Air Traffic Control terms

## A

**ADS-B** - **Automatic Dependent Surveillance – Broadcast** – ADS-B uses ground based antennas and in-aircraft displays to alert pilots to the position of other aircraft relative to their flight path. ADS-B is a key element of NextGen.

**Air Carrier** - A commercial airline with published schedules operating at least five round trips per week.

**Air Taxi** – An aircraft certificated for commercial service available for hire on demand.

**ALP - Airport Layout Plan** – The official, FAA approved map of an airport's facilities.

**ALS – Approach Lighting System** - Radiating light beams guiding pilots to the extended centerline of the runway on final approach and landing.

**Ambient Noise Level** – The existing background noise level characteristic of an environment.

**Approach Lights** – High intensity lights located along the approach path at the end of an instrument runway. Approach lights aid the pilot as he transitions from instrument flight conditions to visual conditions at the end of an instrument approach.

**APU - Auxiliary Power Unit** – A self-contained generator in an aircraft that produces power for ground operations of the electrical and ventilation systems and for starting the engines.

**Arrival** – The act of landing at an airport.

**Arrival Procedure** - A series of directions on a published approach plate or from air traffic control personnel, using fixes and procedures, to guide an aircraft from the en route environment to an airport for landing.

**Arrival Stream** – A flow of aircraft that are following similar arrival procedures.

**ARTCC – Air Route Traffic Control Center** - A facility providing air traffic control to aircraft on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

**ATC - Air Traffic Control** - The control of aircraft traffic, in the vicinity of airports from control towers, and in the airways between airports from control centers.

**ATCT – Air Traffic Control Tower** - A central operations tower in the terminal air traffic control system with an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices to provide safe, expeditious movement of air traffic.

**Avionics** – Airborne navigation, communications, and data display equipment required for operation under specific air traffic control procedures.

**Altitude MSL** –Aircraft altitude measured in feet above mean sea level.

## B

**Backblast** - Low frequency noise and high velocity air generated by jet engines on takeoff.

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

## C

**Center** – See ARTCC.

**CNEL** – Community Noise Equivalent Level - A noise metric required by the California Airport Noise Standards for use by airport proprietors to measure aircraft noise levels. CNEL includes an additional weighting for each event occurring during the evening (7;00 PM – 9:59 PM) and nighttime (10 pm – 6:59 am) periods to account for increased sensitivity to noise during these periods. Evening events are treated as though there were three and nighttime events are treated as thought there were ten. This results in a 4.77 and 10 decibel penalty

penalty for operations occurring in the evening and nighttime periods, respectively.

**CNEL Contour** - The "map" of noise exposure around an airport as expressed using the CNEL metric. A CNEL contour is computed using the FAA-approved Integrated Noise Model (INM), which calculates the aircraft noise exposure near an airport.

**Commuter Airline** – Operator of small aircraft (maximum size of 30 seats) performing scheduled (maximum size of 30 seats) performing service between two or more points.

## D

**Decibel (dB)** - In sound, decibels measure a scale from the threshold of human hearing, 0 dB, upward towards the threshold of pain, about 120-140 dB. Because decibels are such a small measure, they are computed logarithmically and cannot be added arithmetically. An increase of ten dB is perceived by human ears as a doubling of noise.

**dBA** - A-weighted decibels adjust sound pressure towards the frequency range of human hearing.

**dBC** - C-weighted decibels adjust sound pressure towards the low frequency end of the spectrum. Although less consistent with human hearing than A- weighting, dBC can be used to consider the impacts of certain low frequency operations.

**Decision Height** – The height at which a decision must be made during an instrument approach either to continue the approach or to execute a missed approach.

**Departure** – The act of an aircraft taking off from an airport.

**Departure Procedure** – A published IFR departure procedure describing specific criteria for climb, routing, and communications for a specific runway at an airport.

**Displaced Threshold** - A threshold that is located at a point on the runway other than the physical beginning. Aircraft can begin departure roll before the threshold, but cannot land before it.

**DME - Distance Measuring Equipment** - Equipment (airborne and ground) used to measure, in nautical miles, a slant range distance of an aircraft from the DME navigational aid.

**DNL - Day/Night Average Sound Level** - The daily average noise metric in which that noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by 10 dB. DNL is often expressed as the annual-average noise level.

**DNL Contour -** The "map" of noise exposure around an airport as expressed using the DNL metric. A DNL contour is computed using the FAA-approved Integrated Noise Model (INM), which calculates the aircraft noise exposure near an airport.

**Downwind Leg** – A flight path parallel to the landing runway in the direction opposite the landing direction.

**Duration** - The length of time in seconds that a noise event lasts. Duration is usually measured in time above a specific noise threshold.

## E

**En route** – The portion of a flight between departure and arrival terminal areas.

**Exceedance**— Whenever an aircraft overflight produces a noise level higher than the maximum decibel value established for a particular monitoring site, the noise threshold is surpassed and a noise exceedance occurs. An exceedance may take place during approach, takeoff, or possibly during departure ground roll before lifting off.

## F

**FAA** - The Federal Aviation Administration is the agency responsible for aircraft safety, movement and controls. FAA also administers grants for noise mitigation projects and approves certain aviation studies including FAR Part 150 studies, Environmental Assessments, Environmental studies, Environmental Assessments, Environ Impact Statements, and Airport Layout Plans.

**FAR – Federal Aviation Regulations** are the rules and regulations, which govern the operation of aircraft, airways, and airmen.

**FAR Part 36** – A Federal Aviation Regulation defining maximum noise emissions for aircraft.

**FAR Part 91** – A Federal Aviation Regulation governing the phase out of Stage 1 and 2 aircraft as defined under FAR Part 36.

**FAR Part 150** – A Federal Aviation Regulation governing noise and land use compatibility studies and programs.

**FAR Part 161** – A Federal Aviation Regulation governing aircraft noise and access restrictions.

**Fix** – A geographical position determined by visual references to the surface, by reference to one or more Navaids, or by other navigational methods.

**Fleet Mix** – The mix or differing aircraft types operated at a particular airport or by an airline.

**Flight Plan** – Specific information related to the intended flight of an aircraft. A flight plan is filed with a Flight Service Station or Air Traffic Control facility.

**FMS – Flight Management System** - a specialized computer system in an aircraft that automates a number of in-flight tasks, which reduces flight crew workload and improves the precision of the procedures being flown.

## G

**GA - General Aviation** – Civil aviation excluding air carriers, commercial operators and military aircraft.

**GAP Departure** – An aircraft departure via Runways 28 at San Francisco International Airport to the west over San Bruno, South San Francisco, Daly City, and Pacifica.

**Glide Slope** – Generally a 3-degree angle of approach to a runway established by means of airborne instruments during instrument approaches, or visual ground aids for the visual portion of an instrument approach and landing.

**GPS - Global Positioning System** – A satellite based radio positioning, navigation, and time-transfer system.

**GPU - Ground Power Unit** – A source of power, generally from the terminals, for aircraft to use while their engines are off to power the electrical and ventilation systems on the aircraft.

**Ground Effect** – The excess attenuation attributed to absorption or reflection of noise by manmade or natural features on the ground surface.

**Ground Track** – is the path an aircraft would follow on the ground if its airborne flight path were plotted on the ground the terrain.

## H

**High Speed Exit Taxiway** – A taxiway designed and provided with lighting or marking to define the path of aircraft traveling at high speed from the runway center to a point on the center of the taxiway.

## I

**IDP - Instrument Departure Procedure** - An aeronautical chart designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. IDPs were formerly known as SIDs or Standard Instrument Departure Procedures.

**IFR - Instrument Flight Rules** -Rules and regulations established by the FAA to govern flight under conditions in which flight by visual reference is not safe.

**ILS - Instrument Landing System** – A precision instrument approach system which normally consists of a localizer, glide slope, outer marker, middle marker, and approach lights.

**IMC – Instrument Meteorological Conditions** - 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.

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

## J

## K

**Knots** – A measure of speed used in aerial navigation. One knot is equal to one nautical mile per hour (100 knots = 115 miles per hour).

## L

**Load Factor** – The percentage of seats occupied in an aircraft.

**Lmax** – The peak noise level reached by a single aircraft event.

**Localizer** – A navigational aid that consists of a directional pattern of radio waves modulated by two signals which, when receding with equal intensity, are displayed by compatible airborne equipment as an “on-course” indication, and when received in unequal intensity are displayed as an “off-course” indication.

**LDA – Localizer Type Directional Aid** – A facility of comparable utility and accuracy to a localizer, but not part of a complete ILS and not aligned with the runway.

## M

**Middle Marker** - A beacon that defines a point along the glide slope of an ILS, normally located at or near the point of decision height.

**Missed Approach Procedure** – A procedure used to redirect a landing aircraft back around to attempt another landing. This may be due to visual contact not established at authorized minimums or instructions from air traffic control, or for other reasons.

## N

**NAS – National Airspace System** - The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, manpower and material.

**Nautical Mile** – A measure of distance used in air and sea navigation. One nautical mile is equal to the length of one minute of latitude along the earth's equator. The nautical mile was officially set as 6076.115 feet. (100 nautical miles = 115 statute miles)

**Navaid** – Navigational Aid.

**NCT – Northern California TRACON** – The air traffic control facility that guides aircraft into and out of San Francisco Bay Area airspace.

**NDB – Non-Directional Beacon** - Signal that can be read by pilots of aircraft with direction finding equipment. Used to determine bearing and can "home" in or track to or from the desired point.

**NEM – Noise Exposure Map** – A FAR Part 150 requirement prepared by airports to depict noise contours. NEMs also take into account potential land use changes around airports.

**NextGen** – The Next Generation of the national air transportation system. NextGen represents the movement from ground-based navigation aids to satellite-based navigation.

**NMS** – See RMS

**Noise Contour** – See CNEL and DNL Contour.

**Non-Precision Approach Procedure** – A standard instrument approach procedure in which no electronic glide slope is provided.

## O

**Offset ILS – Offset Parallel Runways** – Staggered runways having centerlines that are parallel.

**Operation** – A take-off, departure or overflight of an aircraft. Every flight requires at least two operations, a take-off and landing.

**Outer Marker** – An ILS navigation facility in the terminal area navigation system located four to seven miles from the runways edge on the extended centerline indicating the beginning of final approach.

**Overflight** – Aircraft whose flights originate or terminate outside the metropolitan area that transit the airspace without landing.

## P

**PASSUR System** – Passive Surveillance Receiver - A system capable of collecting and plotting radar tracks of individual aircraft in flight by passively receiving transponder signals.

**PAPI – Precision Approach Path Indicator** - An airport lighting facility in the terminal area used under VFR conditions. It is a single row of two to four lights, radiating high intensity red or white beams to indicate whether the pilot is above or below the required runway approach path.

**PBN –Performance Based Navigation** - Area navigation based on performance requirements for aircraft operating along an IFR route, on an instrument approach procedure or in a designated airspace.

**Preferential Runways** - The most desirable runways from a noise abatement perspective to be assigned whenever safety, weather, and operational efficiency permits.

**Precision Approach Procedure** – A standard instrument approach procedure in which an electronic glide slope is provided, such as an ILS. GPS precision approaches may be provided in the future.

**PRM – Precision Runway Monitoring** – A system of high-resolution monitors for air traffic controllers to use in landing aircraft on parallel runways separated by less than 4,300'.

## Q

## R

**Radar Vectoring** – Navigational guidance where air traffic controller issues a compass heading to a pilot.

**Reliever Airport** – An airport for general aviation and other aircraft that would otherwise use a larger and busier air carrier airport.

**RMS – Remote Monitoring Site** - A microphone placed in a community and recorded at San Francisco International Airport's Noise Monitoring Center. A network of 29 RMS's generate data used in preparation of the airport's Noise Exposure Map.

**RNAV – Area Navigation** - A method of IFR navigation that allows an aircraft to choose any course within a network of navigation beacons, rather than navigating directly to and from the beacons. This can conserve flight distance, reduce congestion, and allow flights into airports without beacons.

**RNP – Required Navigation Performance** - A type of performance-based navigation (PBN) that allows an aircraft to fly a specific path between two 3- dimensionally defined points in space. RNAV and RNP systems are fundamentally similar. The key difference between them is the requirement for on- board performance monitoring and alerting. A navigation specification that includes a requirement for on-board navigation performance monitoring and alerting is referred to as an RNP specification. One not having such a requirement is referred to as an RNAV specification.

**Run-up** – A procedure used to test aircraft engines after maintenance to ensure safe operation prior to returning the aircraft to service. The power settings tested range from idle to full power and may vary in duration.

**Run-up Locations** - Specified areas on the airfield where scheduled run-ups may occur. These locations are sited, so as to produce minimum noise impact in surrounding neighborhoods.

**Runway** – A long strip of land or water used by aircraft to land on or to take off from.

## S

**Sequencing Process** – Procedure in which air traffic is merged into a single flow, and/or in which adequate separation is maintained between aircraft.

**Shoreline Departure** – Departure via Runways 28 that utilizes a right turn toward San Francisco Bay as soon as feasible. The Shoreline Departure is considered a noise abatement departure procedure.

**SENEL – Single Event Noise Exposure Level** - The noise exposure level of a single aircraft event measured over the time between the initial and final points when the noise level exceeds a predetermined threshold. It is important to distinguish single event noise levels from cumulative noise levels such as CNEL. Single event noise level numbers are generally higher than CNEL numbers, because CNEL represents an average noise level over a period of time, usually a year.

**Single Event** – Noise generated by a single aircraft overflight.

**SOIA – Simultaneous Offset Instrument Approach** Is an approach system permitting simultaneous Instrument Landing System approaches to airports having staggered but parallel runways. SOIA combines Offset ILS and regular ILS definitions.

**STAR – Standard Terminal Arrival Route** is a published IFR arrival procedure describing specific criteria for descent, routing, and communications for a specific runway at an airport.

## T

**Taxiway** – A paved strip that connects runways and terminals providing the ability to move aircraft so they will not interfere with takeoffs or landings.

**Terminal Airspace** - The air space that is controlled by a TRACON.

**Terminal Area** – A general term used to describe airspace in which approach control service or airport traffic control service is provided.

**Threshold** – Specified boundary.

**TRACON -Terminal Radar Approach Control** – is an FAA air traffic control service to aircraft arriving and departing or transiting airspace controlled by the facility. TRACONs control IFR and participating VFR flights. TRACONs control the airspace from Center down to the ATCT.

## U

## V

**Vector** – A heading issued to a pilot to provide navigational guidance by radar. Vectors are assigned verbally by FAA air traffic controllers.

**VFR – Visual Flight Rules** are rules governing procedures for conducting flight under visual meteorological conditions, or weather conditions with a ceiling of 1,000 feet above ground level and visibility of three miles or greater. It is the pilot's responsibility to maintain visual separation, not the air traffic controller's, under VFR.

**Visual Approach** – Wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic facility and having an air traffic control authorization, may proceed to destination airport under VFR.

**VASI – Visual Approach Slope Indicator** - An airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused light beams, which indicate to the pilot that he/she is above, on, or below the glide path.

**VMC – Visual Meteorological Conditions** - weather conditions equal to or greater than those specified for aircraft operations under Visual Flight Rules (VFR).

**VOR - Very High Frequency Omni-directional Range** – A ground based electronic navigation aid transmitting navigation signals for 360 degrees oriented from magnetic north. VOR is the historic basis for navigation in the national airspace system.

## W

## X

## Y

## Z

# how to reach us

**SFO Aircraft Noise Abatement Office mailing address is:**
**P.O. Box 8097, San Francisco, CA 94128**

| | |
|---|---|
| **Phone:** | **650.821.5100** |
| **Fax:** | **650.821.5112** |
| **Noise Complaint Line:** | **650.821.4736** |
| **Toll Free Noise Complaint Line:** | **877.206.8290** |
| **Noise Complaint E-mail:** | **sfo.noise@flysfo.com** |
| **Airport Web Page:** | **www.flysfo.com** |
| **Noise Abatement Web Page:** | **http://www.flysfo.com/community-environment/noise-abatement** |
| **Roundtable Web Page:** | **www.sforoundtable.org** |

**SFO Airport/Community Roundtable**
Meeting No. 307 Overview
Wednesday, June 7, 2017

## 1. Call to Order / Roll Call / Declaration of a Quorum Present

Roundtable Chairperson, Elizabeth Lewis, called the Regular Meeting of the SFO Airport / Community Roundtable to order, at approximately 7:02 p.m., in the David Chetcuti Community Room at the Millbrae City Hall. James A. Castañeda, AICP, Roundtable Coordinator, called the roll. A quorum (at least 12 Regular Members) was present as follows:

REGULAR MEMBERS PRESENT
Ahsha Safaí – City and County of San Francisco Board of Supervisors
David Takashima – City and County of San Francisco Mayor's Office
Ivar Satero – City and County of San Francisco Airport Commission
David Pine – County of San Mateo Board of Supervisors
Elizabeth Lewis – Town of Atherton
Douglas Kim – City of Belmont
Ricardo Ortiz – City of Burlingame
Glenn Sylvester – City of Daly City
Harvey Rarback – City of Half Moon Bay
Ann Schneider – City of Millbrae
Sue Digre – City of Pacifica
Ann Wengert – Town of Portola Valley
Janet Borgens – City of Redwood City
Rick Bonilla – City of San Mateo
Mark Addiego – City of South San Francisco

REGULAR MEMBERS ABSENT
C/CAG Airport Land Use Committee (ALUC)
City of Brisbane
Town of Hillsborough
City of Menlo Park
City of San Bruno
City of San Carlos
Town of Woodside

ROUNDTABLE STAFF
James A. Castañeda, AICP – Roundtable Coordinator

SAN FRANCISCO INTERNATIONAL AIRPORT STAFF
Bert Ganoung, Noise Abatement Manager
John Hampel, Noise Abatement Specialist
Nastasja Gjorek, Noise Abatement Specialist

**2. Consideration and Approval of the Technical Consultant Ad-Hoc Subcommittee Recommendation**

Roundtable Chairperson Elizabeth Lewis provided an overview of the Technical Consultant Ad-Hoc Subcommittee's deliberation on their recommendation of Harris, Miller Miller & Hanson Inc. (HMMH) as the Roundtable's Technical Consultant. Eugene Reindel of HMMH provided an introduction to his firm and the expertise they would be providing to the Roundtable.

ACTION: Sue Digre **MOVED** approval of selecting Harris, Miller Miller & Hanson Inc. (HMMH) as the Roundtable's Technical Consultant. The motion was seconded by **Rick Bonilla** and **CARRIED**, unanimously.

**3. Public Comments on Items NOT on the Agenda**

A total of 10 member of the public spoke during public comments. Palo Alto resident Marie-Jo Fremont spoke on oceanic arrivals and inquired about portable noise monitor deployment in Palo Alto. Hillsborough resident Sally Meakin advocated for the creation of an app to make noise reporting more convenient and easier than the current online form. South San Francisco resident Doreen Gotelli spoke on window retrofits and suggested to the Roundtable that a retrofit repair fund be established for those whose windows have failed. Pacifica resident Bill Bray spoke on the noise in his community, and provided some statistics on the number of complaints over the last few years. Woodside resident Royal Farros echoed the concerns of other residents who spoke, but indicated that while the noise was tolerable before in the community, it no longer is.

Several resident of the San Mateo County mid-coast unincorporated communities Moss Beach, Montara and El Granada (Vivian Guzman, Erin Deinzer, Dorothy Baughman, Jane Pray-Silver, Laslo Vespremi) spoke on the impacts in their comminutes and the dramatic increase in noise since last year. It was indicated that a petition was being circulated with 400 signatures currently.

**4. Review of Roundtable Regular Meeting Overview for April 5, 2017 and Special Meeting Corrected Overview for January 12, 2017.**

ACTION: Ann Schneider **MOVED** approval of meeting overview for April 5, 2017 and corrected meeting overview for January 12, 2017. The motion was seconded by **Rick Bonilla** and **CARRIED**, unanimously.

**5. Review of Airport Director's Reports & New Report Format Update**

Noise Abatement Manager Bert Ganoung provided an overview of the director's report for March and April. Mr. Ganoung also pointed out the new report format contained within the meeting packet. Daly City representative Glenn Sylvester indicated that he would like elevations included in the reports. Millbrae representative Ann Schneider suggested having some historical comparisons included. Roundtable Chairperson Elizabeth Lewis indicated that noise exceedances are not as obvious in the new reports, and should be easy to discern. Pacifica resident Ray Ramos indicated he liked the new format but felt that it should also indicate as to

the reason(s) why individuals are making noise complaints in order to correlate the data being presented.

### 6. Review of SFO FlyQuiet Report for Q1 2017

Noise Abatement Manager Bert Ganoung provided an overview of the FlyQuiet report for the first quarter of 2017.

### 7. Airport Director's Comments

Airport Director Ivar Satero presented a brief overview of the current operations at SFO. Mr. Satero provided an update on the runway overlay work currently in progress, and indicated that weekend work will be ending. An update was also provided on the installation of a Ground Based Augmentation System (GBAS) at SFO, and indicated the benefits to noise impacts. Mr. Satero also indicated that the Airport will be looking into portable noise monitor deployment in Palo Alto, and investigation into possible funding opportunities for failed window retrofits. Redwood City representative Janet Borgens suggested researching newer materials if retrofit repairs occur.

### 8. Status, FAA Initiative Response

Roundtable Chairperson Elizabeth Lewis reported on what she knew so far on the status of the FAA Initiative response to the Roundtable's recommendations. It was indicated that the only update was that the FAA response to the Roundtable's recommendations has been transmitted to the Secretary of Transportation for review and approval. No estimated timeline has been established. Brisbane resident Peter Grace expressed that the FAA needs to provide assurances that public health is a criteria and acknowledged in their response.

### 9. Review/Discussion of Monitoring Report for Woodside, Portola Valley, and Brisbane

Noise Abatement Manager Bert Ganoung discussed the monitoring reports included in the meeting packet. Woodside resident Jennifer Smart expressed concern with the altitude where aircraft are only 1,200 to 2,000 feet above terrain, and the distribution during very early morning hours. Woodside resident Raymonde Guindon appreciated the reports, and pointed out the 8,000 foot altitude agreement with Congresswoman Eshoo is not being adhered to by a large number of flights.

Brisbane resident Peter Grace provided a presentation that indicated the importance of setting the noise monitor thresholds to a more realistic level to allow for accurate evaluation. City and County of San Francisco Board of Supervisor representative Ahsha Safaí indicated he was interested to know the criteria of getting additional monitors, which Millbrae representative Ann Schneider also being interested to know as well.

### 10. Update from the Roundtable's Legislative and Work Program Subcommittees

Roundtable Chairperson Lewis provided a brief overview of the work done on May 4, 2017 with both the Legislative and Work Program Subcommittees. The groups will be meeting again on July 13, 2017 to continue their work on legislative goals and objectives, as well as the 2017-2018 Work Plan.

Kathleen Wentworth, legislative aide to Congresswoman Jackie Speier's office, distributed a list of congressional representatives who are part of the Quiet Skies Caucus, as well as other materials related to two House bills (HR 598 and 2539) that focus on health impacts of aircraft flights and establishment of a noise abatement office in the EPA.

### 11. Upcoming Technical Working Group, Operations and Efficiency Subcommittees Meetings

Roundtable Chairperson Lewis indicated the two remaining subcommittee will convene later this summer, but no date has been set yet.

### 12. Member Communications / Announcements

Daly City representative Glenn Sylvester shared that he had just learned and read through the 2009-2010 Grand Jury Report, and questioned if the items identified in that report had been worked through. Millbrae representative Ann Schnider requested that the 2001 backblast studies that had been provided from SFO be posted online on the Roundtable's website. Half Moon Bay representative Harvey Rarback indicated that a letter from the Half Moon Bay City Council to Congresswoman Speier will be forthcoming. Belmont representative Douglas Kim acknowledged City and County of San Francisco Board of Supervisor representative Ahsha Safaí for filling the vacant seat. Mr. Safaí expressed he is glad to be part of the Roundtable, and committed to participating.

### 13. Adjourn

Chairperson Elizabeth Lewis adjourned the meeting at 9:13 p.m.

*Roundtable meeting overviews are considered draft until approved by the Roundtable at a regular meeting. A video recording of this meeting is available on the Roundtable's website.*

# Congress of the United States
Washington, DC 20515

June 28, 2017

Ms. Joanne Benjamin, Interim Executive Director
Cities Association of Santa Clara County
Post Office Box 1079
Los Gatos, California 95031

Dear Ms. Benjamin,

We write to request your assistance with the establishment of a long term forum for aircraft noise concerns in the South Bay. There is a critical need in Santa Clara and Santa Cruz Counties for a permanent venue to address aircraft noise concerns and we think it is essential that this body include all currently unrepresented cities in our Congressional Districts. Because you represent each of the 15 cities within Santa Clara County, we respectfully request your assistance with developing an intergovernmental partnership between the cities in Santa Clara and Santa Cruz Counties, Norman Y. Mineta San José International Airport (SJC), and San Francisco International Airport (SFO) that will serve as a permanent aircraft noise mitigation entity representing all affected communities in the South Bay and Santa Cruz County.

Between May and November, 2016, the Select Committee on South Bay Arrivals, a temporary committee of 12 local elected officials appointed by Congresswoman Anna G. Eshoo, Congressman Sam Farr, and Congresswoman Jackie Speier, convened meetings to receive public input and develop regional consensus on recommendations to reduce aircraft noise caused by SFO flights and airspace, and procedural changes related to the Federal Aviation Administration's Next Generation Air Transportation System. Among the many recommendations that received unanimous approval by the former Committee was the need for a permanent venue to represent currently disenfranchised communities in addressing aircraft noise concerns including, but not limited to SFO. This recommendation stems from the fact that our mutual constituents in Santa Clara and Santa Cruz Counties, do not currently belong to a permanent aircraft noise mitigation entity such as the SFO Airport/Community Roundtable.

Recently, the SJC Airport Commission voted unanimously to recommend that the San José City Council approve the establishment of a roundtable forum at SJC to address the noise impacts of the Airport's South Flow operations. While we agree with the Commission that there is a significant demand for an aircraft noise mitigation entity to represent constituents in the South Bay, it is imperative that any potential body not be confined to SJC or SFO related issues and also include representation of all affected and currently unrepresented communities in Santa Clara and Santa Cruz Counties. Although the participation by elected officials in each affected city is essential, it is critical that the establishment of such a body should not be unilaterally implemented by one city, but instead be led collectively by the entire affected region.

We've enclosed a copy of the SFO Airport/Community Roundtable's Purpose and Bylaws which can serve as a model in the South Bay. We would like the Cities Association to collect input from your membership, provide suggestions from each of the cities within your jurisdiction, and to work with the County of Santa Cruz and the Directors of SJC and SFO to develop an intergovernmental partnership modeled after the SFO Airport/Community Roundtable and referred to as the South Bay Airport Roundtable. This body should serve as the permanent

aircraft noise mitigation entity representing each city within each county, and with jurisdiction spanning aircraft noise issues including but not limited to those related to either SJC or SFO. We recommend that the FAA agree to provide technical assistance as needed, and that like the SFO Airport/Community Roundtable, SJC would be responsible for hosting and staffing meetings. To ensure equitable regional representation, each city and county should have the opportunity to appoint one Member and one Alternate who are local elected officials to serve on the body, elect their own leadership, and participate in helping to fund the effort just as the SFO Airport/Community Roundtable does. Once it is conceived, the newly formed South Bay Airport Roundtable could also work with the SFO Airport/Community Roundtable to establish a joint subcommittee to address complex overlapping issues related to the Midpeninsula.

We understand that developing solutions to aircraft noise issues is a complicated and sensitive endeavor that requires extensive engagement with constituents living in affected communities facing sometimes separate but ultimately interrelated issues. Because of this, any proposed changes to our complex airspace should not be the burden of one single city and can only be achieved fairly and effectively with a foundation of regional consensus. The establishment of a permanent South Bay entity is the fundamental prerequisite to ensuring that there is a platform to develop regional consensus upon and thereby ensure any current and future aircraft noise concerns of our mutual constituents can be adequately addressed.

We hope you will accept our request to adopt a leadership role in helping to meet this important regional need. Thank you in advance for your attention to our request and we look forward to your timely response and assistance.

Sincerely, and gratefully,

Anna G. Eshoo
Member of Congress

Jimmy Panetta
Member of Congress

Ro Khanna
Member of Congress

cc: Members, Santa Clara County Board of Supervisors
Members, Santa Cruz County Board of Supervisors
The Honorable Liz Gibbons, Mayor, City of Campbell
The Honorable Savita Vaidhyanathan, Mayor, City of Cupertino
The Honorable Roland Velasco, Mayor, City of Gilroy
The Honorable Mary Prochnow, Mayor, City of Los Altos
The Honorable Gary Waldeck, Mayor, Town of Los Altos Hills
The Honorable Marico Sayoc, Mayor, Town of Los Gatos
The Honorable Rich Tran, Mayor, City of Milpitas
The Honorable Marshall Anstandig, Mayor, City of Monte Sereno
The Honorable Steve Tate, Mayor, City of Morgan Hill
The Honorable Ken Rosenberg, Mayor, City of Mountain View
The Honorable Gregory Scharff, Mayor, City of Palo Alto
The Honorable Sam Liccardo, Mayor, City of San José
The Honorable Lisa Gillmor, Mayor, City of Santa Clara
The Honorable Emily Lo, Mayor, City of Saratoga
The Honorable Glenn Hendricks, Mayor, City of Sunnyvale
The Honorable Stephanie Harlan, Mayor, City of Capitola
The Honorable Cynthia Chase, Mayor, City of Santa Cruz

The Honorable Randy Johnson, Mayor, City of Scotts Valley
The Honorable Oscar Rios, Mayor, City of Watsonville
The Honorable Elizabeth Lewis, Chair, San Francisco International Airport/Community Roundtable
Mr. John Aitken, Interim Director of Aviation, Norman Y. Mineta San José International Airport
Ms. Julie Riera Matsushima, Chair, Norman Y. Mineta San José International Airport Commission
Mr. Ivar C. Satero, Director, San Francisco International Airport
Mr. Dennis Roberts, Western Pacific Regional Administrator, Federal Aviation Administration
Members and Alternates, Former Select Committee on South Bay Arrivals
The Honorable Jackie Speier, Member of Congress
The Honorable Zoe Lofgren, Member of Congress

Enclosure

San Francisco International
Airport/Community Roundtable

455 County Center, 2nd Floor
Redwood City, CA 94063
T (650) 363-1853
F (650) 363-4849
www.sforoundtable.org

July 27, 2017

TO: Roundtable Representatives, Alternates, and Interested Persons

FROM: James A. Castañeda, AICP, Roundtable Coordinator

SUBJECT: Roundtable Legislative Subcommittee Meeting Summary

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On July 13, 2017, the Legislative Subcommittee convened their second meeting for 2017 at the San Mateo County Planning and Building Department offices in Redwood City.

Roundtable Members Present
Janet Borgens, City of Redwood City (Legislative Subcommittee Chairperson)
Sue Digre, City of Pacifica (Legislative Subcommittee Vice-Chairperson)
Elizabeth Lewis, Town of Atherton (Roundtable Chairperson)
Mark Addiego, City of South San Francisco (Roundtable Vice-Chair)
Deborah Gordon, Town of Woodside
Ann Schneider, City of Millbrae
Harvey Rarback, City of Half Moon Bay

Staff & Advisory Present
James Castañeda, Roundtable Coordinator
Justin Cook, Roundtable Technical Consultant
Bert Ganoung, Noise Abatement Office, San Francisco International Airport
Ara Balian, Noise Abatement Office, San Francisco International Airport
Kathleen Wentworth, Congresswoman Jackie Speier's Office
Linda Wolin, San Mateo County Supervisor Dave Pine's Office

Public Present
Lydia Kou, Council Member – City of Palo Alto
Jennifer Landesmann, City of Palo Alto resident
Jon Zweig, City of Palo Alto resident

Meeting Summary
The meeting started with an overview and discussion regarding the FAA Reauthorization bill currently under consideration by the United States Senate. The discussion was prompted by an email sent from Los Angeles resident Michael Salman (attached), who wanted to make the Roundtable aware of the timeliness of the reauthorization bill and the opportunity to reach out to representatives. Janet Borgens, Legislative Subcommittee Chairperson, ask legislative aide to Congresswoman Jackie Speier's office Kathleen Wentworth for any insight on the matter. Ms. Wentworth provided some remarks on the matter that she was aware of.

After a brief discussion, it was decided that the Roundtable Chairperson provide the "Overarching Concerns" section of the response to the FAA Initiative published in November 2016, along with a cover letter, to Senators Feinstein and Harris (attached). Due to the time sensitive nature of the reauthorization bill, this was considered the most expedient way to share the Roundtable's priorities to be considered with reauthorization.

The group them moved on to discuss potential outreach with other aviation noise group's (agenda item 4), where several other noise organizations were mentioned and listed off. Both Legislative Subcommittee Chairperson Janet Borgens and Roundtable Technical Consultant Justin Cook indicated they would research further groups in California, including grassroots organization.

The topic of proposing new legislation was then raised, which involved a brief discussion of the Airport Noise Capacity Act of 1990 (ANCA), and potential to proposed updated/new regulations that involves consideration of NextGen impacts. Questions about Stage 5 regulations in Europe was raised, and should be considered with any future regulations that may updates or replace ANCA.

Follow-up/task items for the group included:

- Cover letter and transmittal of the Roundtable's FAA Initiative Response "Overarching Concerns" to Senators Feinstein and Harris.
- Research and creation of a consolidated list of other roundtables, forums, and/or grassroot organizations focused on airport/aircraft noise.
- Research on National Association to Insure a Sound Controlled Environment (N.O.I.S.E.).
- Provide a briefing to the Roundtable regarding privatization of air traffic control.

Meeting was adjourned at 11:42 a.m.

A video of the webcast with audio is available to view at: https://youtu.be/N0BncPX3yFk

Attachments:
1) Email from Michael Salman, dated July 10, 2017 and July 13, 2017.
2) Letter to Senators Feinstein and Harris, dated July 17, 2017.
3) Working list of airport/aircraft noise roundtable/forums organizations in California.
4) Overview from the Noise Abatement Office regarding Stage 5 regulations, dated July 21, 2017.

jc

# SFO Roundatble: discussion of Senate FAA Re-authorization bill S1405 & NextGen noise

Michael Salman <salman@history.ucla.edu>

Mon 7/10/2017 4:49 PM

To: jborgens@redwoodcity.org <jborgens@redwoodcity.org>; suedigre@gmail.com <suedigre@gmail.com>; elewis@ci.atherton.ca.us <elewis@ci.atherton.ca.us>; mark.addiego@ssf.net <mark.addiego@ssf.net>; david.takashima@sfgov.org <david.takashima@sfgov.org>; Hrarback@hmbcity.com <Hrarback@hmbcity.com>; dcgordon@me.com <dcgordon@me.com>; schneiderann@juno.com <schneiderann@juno.com>;

Cc: James A Castañeda <jcastaneda@sforoundtable.org>;

To the SFO Roundtable Legislative Subcommittee,

I have talked with Roundtable coordinator James Castaneda and he recommended I contact you directly by email with a suggestion for your consideration.

**The U.S. Senate is currently considering a four year FAA Reauthorization bill (S. 1405). This is an opportunity to engage with our U.S. Senators to request that they organize with Senators from other NextGen impacted States to seek an amendment addressing the need for noise mitigation due to new NextGen flight paths and procedures.**

The opportunity is time sensitive. The Senate bill cleared committee on June 29. The current FAA authorization is a one year stopgap that expires in September, so the Congress is under pressure to act soon, if it can. The Senate bill could go to the Senate floor at any time.

An amendment to address NextGen noise problems could be modeled (with modifications) on Senator McCain's and Senator Flake's amendment to the Defense Authorization Act passed in December 2016. That amendment requires mitigation in cases in which NextGen was implemented without Environmental Assessment and then created noise problems. McCain/Flake was intended to address the situation in Phoenix, where there was no EA. In Los Angeles (where I live) and elsewhere there have been EAs that predicted "no significant impact" and then implementation has created severe noise problems in actual practice.

Thus a modified amendment for the FAA bill should require mitigation in all cases in which NextGen implementation results in significant noise problems in practice.

The amendment could also require a study of actually produced noise levels (vs predictions in the EA process). It could address the issue of CNEL vs DNL, and/or the 65 db threshold. But it could well be that a simple and direct call for mitigation of noise (leaving details TBD, similar to the McCain/Flake amendment) might be the shrewdest political strategy.

This outreach to Senators regarding the Senate FAA bill would also do double duty as an expanded request that our US Senators approach the FAA again about taking short term mitigation steps.

I know that Senators Feinstein and Boxer wrote to the FAA about Bay Area problems in 2016, but since that time there have been several major developments:

1. my understanding is mitigation steps have not yet been taken in the Bay Area
2. the SoCal Metroplex has had its roll out with the same kind of problems experienced in seemingly every other venue
3. SoCal and the Bay Area together make up a bigger chunk of our Senator's constituency, and Sen Boxer has been replace by Sen

Harris

4. since the Feinstein & Boxer letter other Senators from other States have become deeply engaged: McCain & Flake of Arizona, Cardin and Van Hollen of Maryland, Warren of Massachusetts, and more.
5. in June 2017 the FAA told the Governor of Maryland and the two US Senators and the BWI round table that an increase in altitude is possible as a mitigation step in the short term. See: http://www.capitalgazette.com/news/government/ph-ac-cn-bwi-flights-0517-20170516-story.html

All of these factors create an opportunity to achieve some significant progress, but timeliness is important.

The Senate bill already passed Committee and we all should have been engaged back then.

So now we have the next best shots before the bill goes to the Senate floor, and before it goes to Senate/House conference. It is quite possible that the 4 year re-authorization will fail again, as it did in 2016, in which case in August/September there will be a 1 year re-authorization that would give us another shot at an amendment.

And all along the way this outreach to Senators to seek an amendment would double as lobbying to have the Senators again engage the FAA directly.

One last note that is important: The Senate has a chance to pass an amendment addressing NextGen noise because the FAA bill in the Senate is bipartisan (Thune and Nelson are the sponsors) and Senator concern about NextGen noise problems is also bipartisan (McCain and Flake, for example). In contrast, the House FAA bill is solely Republican. The Quiet Skies Caucus in the House is almost entirely composed of Democrats, and the structure of the House means they have not chance of getting an amendment accepted. The Senate is the only place to get an amendment into a bill.

Hope you think this is worth talking about.

We are working on this route in Los Angeles.

Michael Salman

Associate Professor of History, UCLA

Home Phone: 323-402-0840

# LAX Roundtable, NextGen, and Senate bills

Michael Salman <salman@history.ucla.edu>

Thu 7/13/2017 10:12 AM

To: jborgens@redwoodcity.org <jborgens@redwoodcity.org>; suedigre@gmail.com <suedigre@gmail.com>; elewis@ci.atherton.ca.us <elewis@ci.atherton.ca.us>; mark.addiego@ssf.net <mark.addiego@ssf.net>; david.takashima@sfgov.org <david.takashima@sfgov.org>; Hrarback@hmbcity.com <Hrarback@hmbcity.com>; dcgordon@me.com <dcgordon@me.com>; schneiderann@juno.com <schneiderann@juno.com>;

Cc: James A Castañeda <jcastaneda@sforoundtable.org>;

To the SFO Roundtable Legislative Subcommittee

I attended the LAX Roundtable meeting last night, spoke at the meeting at the outset of public comment, and had individual discussions with several members, the Chair of the Roundtable, FAA regional Adminstrator Dennis Roberts, and also the deputy of my Congresswoman (Rep Bass).

In addition to S 1405 (FAA Reauthorization), there is another Senate bill that is still in committee that might provide an even better shot for getting a NextGen noise mitigation amendment worked into law. That bill is S 320 (NextGen Accountability), sponsored by Senator Daines (R-Montana).

S320 was read in committee in February and has not had any movement since. With appropriate amendments, like an expanded version of the McCain amendment on noise mitigation, S320 could become a win-win bipartisan bill. Amending it is technically easier because it is still in committee. Since I think there is a better than 50% chance that S1405 and 4 year FAA Reauthorization will not pass both houses of Congress again, as in 2016, this second bill might become more interesting to a wide swath of Senators with varied interests in NextGen, including all of the Senators of both parties who have been concerned about the noise problems.

The LAX Roundtable will, I believe, put these legislative issues on its agenda for September. But, in the meantime, individual members were encouraged by several members to contact their Municipal and County leaders to request that they start lobbying the Senators on S1405 and S320, and of course to contact the Senators' staff directly themselves. Given the nature of things, I imagine that timing might work similarly for you up there.

I believe the LAX Roundtable will also agendize items to 1) address the problem of a majority of planes flying in under the minimum altitudes set in FAA procedures at certain specific way points, and 2) to consider applying for an AIP grant to contract for a professional study of noise impact from the new flight paths.

Last, I believe the LAX Roundtable was receptive to the idea of establishing contact with the SFO Roundtable. I will send a note to SFO's coordinator and the LAX chair to introduce them. The Bay Area is a couple of years ahead of Los Angeles in dealing with the new problems and challenges associated with NextGen. I am hopeful that the LAX Roundtable will be able to learn from the SFO experience and also from the Bay Area Select Committee's experience. In return, we all stand to benefit from the wider understanding by the FAA and our Senators and Representatives that we are coping with a California problem as well as a regional problem (and of course there are national dimensions, too).

Within the City of Los Angeles I and others are making progress toward having some important City representatives start calling the Senators' staff on the legislative issues. We are not there yet, but on our way.

Best

Michael Salman

On 7/10/2017 4:49 PM, Michael Salman wrote:

> To the SFO Roundtable Legislative Subcommittee,

San Francisco International
Airport/Community Roundtable

455 County Center, 2nd Floor
Redwood City, CA 94063
T (650) 363-1853
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www.sforoundtable.org

July 14, 2017

Senator Dianne Feinstein
1 Post Street, Suite 2450
San Francisco, CA 94104

Senator Kamala Harris
501 I Street, Suite 7-600
Sacramento, CA 95814

Re: FAA Reauthorization Bill S.1405 and NextGen Accountability Bill S.320

Dear Senators Feinstein and Harris,

The San Francisco International Airport/Community Roundtable (Roundtable) would like to gratefully thank you for forcefully advocating on behalf of our residents to mitigate unhealthy and excessive airport and aircraft overflight noise. As you are aware, our Bay Area region is experiencing a dramatic increase in noise impacts due to the FAA's implementation of the new NextGen/Metroplex procedures. These procedures are not only impacting quality of life, but also severely harming the health of our residents of all ages.

We appreciate the willingness of Administrator Huerta and the FAA to engage with community stakeholders as part of the FAA Initiative to Address Noise in the Bay Area (Initiative) effort of the past two years to find solutions to mitigate the increased and harmful noise resulting from NextGen/Metroplex implementation. While we have received positive assurances from FAA representatives that a response to our collaborative work and recommendations is forthcoming, we have not received any response to date. For our constituents and officials who have been actively working on this for relief actions, this is an extremely urgent matter.

We understand that the Senate is currently considering two Bills that may provide an opportunity for change in how the FAA operates our airports and may help our residents- FAA Reauthorization Bill (S.1405) and NextGen Accountability Bill (S.320). We request your collaboration with your fellow Senators from other NextGen impacted states to include in these bills the necessary amendments and/or additional language which takes into consideration the following "Overarching Issues" which the Roundtable has submitted to the FAA as part of our response to the FAA Initiative back in November 2016. The following excerpts speak to the relief from noise resulting from newly implemented NextGen flight paths and procedures our communities urgently need.

The Roundtable has worked extensively with its members through several public meetings to fully understand the issues and concerns, and responded to the FAA Initiative with numerous recommendations that have been driven by our local residents, and unanimously approved by the members of the Roundtable.

We respectfully request that you consider the following key issues/recommendations of the Roundtable's Overarching Concerns as you work to amend and/or modify both the FAA Reauthorization Bill S.1405 and the NextGen Accountability Bill S.320.

Respectfully,

Elizabeth Lewis, Roundtable Chairperson

cc:
Members, San Francisco Airport/Community Roundtable
Senator Chuck Schumer
Congresswoman Jackie Speier
Congresswoman Anna Eshoo

Attached:
Excerpts from "Overarching Concerns" contained as part of the *SFO Airport/Community Roundtable Response to the FAA Initiative*

**AIRPORT NOISE AND CAPACITY ACT OF 1990**
We support repeal or amendment of the Airport Noise and Capacity Act of 1990, and other existing law(s), in order to allow airports to impose non-discriminatory nighttime curfews, capacity limitations at saturated airports, and other noise abatement improvements.

The recent implementation of NextGen/Metroplex procedures by the FAA, combined with increased air traffic, has dramatically changed how our airports are operated and has dramatically increased and concentrated noise over our communities. The Airport Noise and Capacity Act of 1990 should also be changed to reflect the current airport environment.

**AIRCRAFT NOISE AS A HEALTH ISSUE**
Documented in peer-reviewed scientific journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults. Impacts to children show that aircraft noise can result in an increase in children's blood pressure and can cause negative impacts on children's education as shown by lower levels in cognitive testing, task perseverance, long term memory, short term memory and reading achievement.

In assessing impacts to the community, the Roundtable asks that consideration be given to the limitations of using an annual average metric such as DNL to assess impact on the members of the community. Impact to the community extends far beyond an arbitrary DNL level that is widely acknowledged to be inadequate. There are other available noise metrics, including those that better capture how the frequency of flights impact communities. Where available, these alternate metrics should be factored into FAA decisions. We understand that the FAA is conducting a wide-ranging study of noise impacts on the communities. When the results are available, we would recommend that more representative noise metrics from this study be implemented as soon as feasible and that existing and future flight procedures be reviewed in light of the new noise data.

The FAA Mission Statement currently reads – "Our Mission: Our continuing mission is to provide the safest, most efficient aerospace system in the world."

We support action to amend the FAA Mission Statement to include "noise, health and other impacts to the communities" along with efficiency, as a secondary consideration after safety. While nothing can be more important than safety in our skies, it is the opinion of this Roundtable that noise and adverse health impacts to the communities should be included at least as equally important considerations as efficiency.

**INCREASED COMMUNITY ROLE IN FAA ACTIONS**
We support legislative and FAA action that would increase the role of communities in FAA processes. The SFO Roundtable supports the inclusion of the community in the FAA procedure design process and other processes as an equal stakeholder, so that we can participate from the same point in time and at the same level as stakeholders who advocate for efficiency. This includes having community representatives as equal members of the FAA Full Work Group and its iterative processes, not merely as an afterthought-- offering comments after all decisions have been made.

FAA procedure design criteria must be modified to consider not just safety and efficiency for the airspace users, but also consider community impact and to solicit community input using local land conditions, population density, other sensitive noise areas, success of historical routes and other community-provided factors. This is why we strongly support designing and flying procedures such as the CNDEL, SSTIK, and BDEGA to utilize the Bay and ocean as efficiently as possible. Ameliorative

efforts, such as track dispersal, avoidance of narrow flight path corridors over heavily populated areas and increased in-trail spacing to reduce vectoring, should be incorporated in designing procedures and in taking all other actions which might potentially affect communities.

**FAA PUBLIC ENGAGEMENT PROCESS**

The FAA should immediately review, expand and improve their public engagement process. Appropriate notifications to elected officials, community leaders and the public should be substantially improved. While legal notification may be satisfied by such measures as listing in the Federal Register and placing an ad in the legal notice section of a local newspaper, this rarely reaches elected officials or members of the public. Use of social media targeted to specific airports or geographic areas should be part of this process. The FAA website should create user-friendly public engagement pages to make FAA proposed actions easy to find and to invite public comment. Community meetings should provide an opportunity for Airport Roundtable representatives and other advocates to formally present information and contrary views.

**MAINTAIN CURRENT NAVIGATION ASSETS**

We understand that the Big Sur VOR is in a group of navigational aids slated for decommissioning beginning in fiscal year 2016. The Roundtable requests that no navigational aids in the NorCal airspace be decommissioned and no flight procedure or waypoints in the NorCal airspace be deleted or removed from the approved flight procedures database until the FAA Initiative Community Engagement process has been completed with all new procedures implemented. While the airspace is being reviewed, the Roundtable requests the FAA to review the necessity of maintaining the Special Use Airspace over the Pacific Ocean at the coastline and other areas that may restrict commercial flight routes. Use of this airspace by commercial flights may allow for additional options for noise abatement routes to alleviate noise to communities.

**VECTORING FOR EFFICIENCY**

The Roundtable understands that vectoring for airspace separation is important for safety. However, vectoring for efficiency—especially that which causes increased needless noise to residents or causes noise to residents in areas not included in the procedures design environmental review--should be avoided.

Flight schedules that exceed an airport's capacity can increase aircraft being vectored for efficiency and separation. For example, at SFO, 50% of flights from the south are routinely planned to be vectored off course because of airspace congestion at SFO. The FAA should increase the in-trail spacing of these flights to avoid unnecessary vectoring. While the Roundtable recognizes that this may cause some departure delays, it will eliminate in-flights delays, reducing emissions and noise. While awaiting future improvements such as Time Based Flow Management, we ask that the FAA take action now to reduce the need for unnecessary vectoring over communities – which adds completely unnecessary emissions, noise and health impacts to those communities.

**NIGHTTIME PROCEDURES PLAN**

Aircraft noise at night most severely impacts the health and well-being of residents and especially children, who must sleep to recharge for their next day of school learning. Because of serious health and learning impacts, the FAA should take extraordinary steps to decrease nighttime hours' noise – including extra miles flown and modest flight delays.

The Roundtable has compiled a comprehensive Nighttime Procedures Plan which includes recommendations for new and revised flight procedures, filing for alternative flight paths and requests to the professional air traffic controllers to use their best efforts to manage traffic with a goal of 100% of all nighttime flights departing and arriving over water such as the Pacific Ocean and Bay. Ideally, these special nighttime hours' procedures would be used from 10:00 pm to 7:00 am. The ability to fully use the Nighttime Procedures Plan is based on fewer flights and additional available airspace. This happens when the SJC curfew begins at 11:30 pm, along with fewer SFO and OAK flights that generally occurs between 12:00 midnight - 6:00 am.

**Oakland Airport/Community Noise Management Forum**

http://flyquietoak.com/pages/noise-forum/noise-forum.html

Doreen Stockdale
Airport Noise Management Office
One Airport Drive, Box 45
Oakland, CA 94621
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510.563.2881

**Save Our Skies Eastbay**

http://www.soseastbay.org/

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Oakland, CA 94661
SaveOurSkiesEastBay@gmail.com

**San Diego Airport Noise Advisory Committee (ANAC)**

http://www.san.org/airport-noise/initiatives

Sjohnna Knack
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2722 Truxtun Road
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**San Diego Air Route Forum**

https://www.facebook.com/groups/plairroute

http://www.noplanenoise.com/

**LAX Community Noise Roundtable**

http://www.lawa.org/LAXNoiseRoundTable.aspx

Kathryn Pantoja
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**San Lorenzo Citizens Fighting Airport Noise**

http://haywardairportnoise.org/

**Peninsula Aircraft Noise & Safety Information Committee (PANIC)**

http://www.palosverdes.com/panic/

Beverly Ackerson or David Kuntz
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Palos Verdes Peninsula, CA 90274
(310) 541-3026

SAN FRANCISCO INTERNATIONAL AIRPORT
CITY & COUNTY OF SAN FRANCISCO

# MEMORANDUM

| | |
|---|---|
| **TO:** | **ROUNDTABLE LEGISLATIVE SUBCOMMITTEE** |
| **VIA:** | **BERT GANOUNG**<br>**AIRCRAFT NOISE ABATEMENT** |
| **FROM:** | **DARREN KUNG**<br>**AIRCRAFT NOISE ABATEMENT** |
| **SUBJECT:** | **CHAPTER 14 AND STAGE 5 NOISE STANDARD CERTIFCATION REQUIREMENTS** |
| **DATE:** | **JULY 21, 2017** |

Following the Roundtable Legislative Working Group tasking the Aircraft Noise Abatement Office to conduct research on Chapter 14 and Stage 5 requirements, we looked in detail of both noise standards as well as the delay of proposing Stage 5.

In July 2014, the International Civil Aviation Organization (IACO) introduced a new noise standard to the international community. This new noise standard, called Chapter 14 was amended into ICAO's Annex 16, Volume 1. Since 2013, Working Group 1 (WG-1) of the Committee on Aviation Environmental Protection has discussed different levels of noise stringency on airplanes. The Chapter 14 noise standard increases the stringency of 7 Effective Perceived Noise Decibels (EPNdB), a measure of the relative loudness of an individual aircraft pass-by event, relative to Chapter 4 standards and 17 EPNdB relative to Chapter 3 noise standards. The international standard applies to any person submitting an application for a new airplane on or after December 31, 2017 with a maximum certificated takeoff weight greater than or equal to 55,000 kg (or 121,254 pounds). This standard also applies to airplanes with a newly submitted application on or after December 31, 2020 with a maximum certificated takeoff weight of less than 55,000 kg.

To harmonize the noise standard in the United States with the international community's, the Federal Aviation Administration (FAA) proposed a new noise standard in January 2016 called Stage 5, which mirrors that of Chapter 14. There are currently no plans that call for the phase-out of Stage 3 and Stage 4 aircraft, nor any operational restrictions or production cutoffs on use of these respective aircraft. The Stage 5 noise regulation will be effective on the same dates as those of Chapter 14. Many aircraft currently being manufactured, such as the A380, A350, and B787 already meet Stage 5. Similarly, many lightweight corporate and regional jets meet Stage 5 requirements.

The ICAO noise standards are defined in Annex 16 to the Convention on International Civil Aviation. These standards are defined in an international level first, in ICAO, and later each member state needs to incorporate them into their national regulatory framework. This process is the reason why it seems that the United States is behind the international community in introducing new noise regulations. However, the United States was involved in the discussions on Chapter 14 from the start, as we are part of WG-1. Stage 5 and Chapter 14 will be effective concurrently, despite being introduced in different years.

San Francisco International
Airport/Community Roundtable

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July 26, 2017

TO: Roundtable Representatives, Alternates, and Interested Persons

FROM: James A. Castañeda, AICP, Roundtable Coordinator

SUBJECT: Roundtable Work Plan Subcommittee Meeting Summary and 2017-2018 Work Plan

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On July 13, 2017, the Work Program Subcommittee convened at the San Mateo County Planning and Building Department offices in Redwood City to continue their work on the 2017-2018 Work Plan.

Roundtable Members Present
Elizabeth Lewis, Town of Atherton (Roundtable Chairperson)
Janet Borgens, City of Redwood City
Ann Schneider, City of Millbrae
Ann Wengert, Town of Portola Valley

Staff & Advisory Present
James Castañeda, Roundtable Coordinator
Justin Cook, Roundtable Technical Consultant
Bert Ganoung, Noise Abatement Office - San Francisco International Airport
Kathleen Wentworth, Congresswoman Jackie Speier's Office
Linda Wolin, San Mateo County Supervisor Dave Pine's Office

Public Present
Lydia Kou, Council Member - City of Palo Alto
Jennifer Landesmann, City of Palo Alto resident

Meeting Summary
Roundtable Coordinator James Castañeda began by reviewing the items listed at the May 4, 2017 Work Program subcommittee meeting to be added to the work plan. Most of those items focused on the administrative tasks and research sections, specifically with outreach to other organization, expanded and improved resources for Roundtable members and the public, and backblast/ground based noise research.

The Subcommittee reviewed the legislative task sections and made several edits and suggestions to reflect the discussions made during the Roundtable's Legislative Subcommittee meetings on May 4, 2017 and earlier in the day on July 13, 2017. The Subcommittee specifically wanted to include tasks that involving proactive participation in legislative and regulatory advocacy where opportunities exist (reflected as task LI-2), as well as pursue potential legislative solutions through proposed updated and/or new regulations (reflected as task LI-3).

Other edits were discussed in both the research and aircraft operations/airspace sections of the work plan, such as researching aircraft noise as a health issue, research the feasibility of using supplemental noise metrics outside of the 65 dB CNEL, ground based noise research, and continued efforts to aggressively pursue status updates and proactive involvement with implementation and modification of NextGen/Metroplex.

Meeting was adjourned at 3:00 p.m.

Roundtable Suggested Action
The attached 2017-2018 Work Plan reflects discussions made at the May 4, 2017 and July 13, 2017 meeting, and review by Work Program Subcommittee members. The subcommittee recommends that the Roundtable consider and adopt the Work Plan for 2017/2018.

A video of the webcast with audio is available to view at: https://youtu.be/IJZ44e5NpE0

Attachments:
1) 2017-2018 Roundtable Annual Work Plan

jc


# ROUNDTABLE ANNUAL WORK PLAN

## July 1, 2017 through June 30, 2018

*Presented to the Roundtable for consideration on August 2, 2017*

**Organization of the Work Program**
The Work Program is organized as follows. Each of the items includes: item description, background, present to Roundtable, staff assigned, Strategic Plan goal and budget allocated.

- Administrative Items
- Legislative Items
- Research Items
- Aircraft Operations/Airspace

**Introduction**
The Work Program is part of the Roundtable's overall approach to planning efforts; it is guided by the Roundtable's Strategic Plan. The Strategic Plan has a three-year planning horizon and the Work Program has a one-year planning horizon. The Work Program items are distilled from the overall Strategic Plan goals; each of the Work Program items are associated with a Strategic Plan goal.

While the Work Program is a one-year document, many items will be rolled over through multiple planning cycles. This is due to the longer-term nature of some items, including standing updates and future technologies. These longer-term items remain on the Work Program in order for the Roundtable to maintain their understanding of the issue. The Roundtable appointed a Work Program Subcommittee to carry out the work program planning process and to bring a recommended Work Program back to the full Roundtable for its consideration and adoption.

## ADMINISTRATIVE ITEMS

AI-1. Roundtable Website Maintenance

**Item Description:** Maintain the Roundtable website[1] and update with new information as required for the public.

- Maintain existing website.
- Include historical information as required.
- Upload agendas, agenda packets, and subcommittee meeting information.
- Maintain and continue to populate informational section containing Noise 101 presentations and noise metric videos.
- Maintain list of other Roundtable group information (include links)
- Residential Sound Insulation Program FAQ
- Create and maintain a dedicated resource page for Federal Aviation Administration (FAA) Initiative documents and progress/status reports.

**Background:** The Roundtable updated its website as a Work Program item in 2013–2014 and it was presented to the Roundtable at its September 2013 meeting.
This is a maintenance item. Roundtable staff and consultant staff will update the website per-meeting with the agenda and agenda packet, upload subcommittee agendas, and update the website with appropriate documents, links, and tweets.

**Present to Roundtable:** As new information is uploaded.

[1] http://sforoundtable.org/

**Staff Assigned:** Roundtable.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** None; updates will utilize existing staff resources where possible, or additional funding to be allocated if necessary to be reviewed/approved by the Roundtable.

AI-2. Fly Quiet Reporting and Evaluation

**Item Description:** Continue receiving updates to the Airport's Fly Quiet Program, and investigate/discuss effectiveness of current program.

**Background:** The Roundtable and Airport launched the Fly Quiet Program in 2001. The Fly Quiet Program is a quarterly report of airline performance in specific categories. The Roundtable typically holds the Fly Quiet awards between February and June meeting each year, inviting the overall winner and category winners to the Roundtable meeting for an official presentation of the awards. The awards presented are: Chairman's Award, Fly Quiet Award, and Most Improved. It is recommended the February meeting be held at the Airport's Museum to present the awards to airlines receiving them to celebrate their accomplishments. In an effort to keep the program effective, periodic discussions of the current successes and potential improvements is encouraged.

**Present to Roundtable:** This item is anticipated to be presented to the Roundtable at meetings immediately following the closing of each reporting quarter, including information on fleet mix trends at the Airport. Program status, progress, and effectiveness can be discussed either during the report presentations, and/or assigned to the Operations and Efficiencies subcommittee or an Ad-Hoc subcommittee to collaborate with the Airport's Aircraft Noise Abatement staff.

**Staff Assigned:** Airport Aircraft Noise Abatement, Roundtable Operations and Efficiencies Subcommittee, Roundtable Ad-Hoc Subcommittee.

**Strategic Goal:** 2 – Airline Outreach.

**Budget Allocated:** Budget expenditure to include refreshments and the existing budget for awards.

AI-3. Airport Updates

**Item Description:** Continue receiving updates from the Airport Director or other staff at the Airport on significant airport happenings, traffic levels, operations, and other data from the preceding months.

**Background:** The Airport provides information germane to the Roundtable and noise issues at each meeting. The briefing is typically provided by the Airport Director.

**Present to Roundtable:** This item is anticipated to be presented to the Roundtable at each meeting.

**Staff Assigned:** Airport.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** None.

AI-4. Outreach to Regional Roundtables/Noise Forums

**Item Description:** Continue dialogue with other noise forums within Northern California (include Oakland International Airport (OAK) Community Noise Management Forum[2], Mineta San Jose International Airport (SJC), Sacramento International Airport (SMF0, ) to share information and best practices, discuss issues relating to the Bay Area, Northern California, and national airport noise issues. When opportunities exist, explore the potential of joint meetings.

**Background:** The Roundtable has a history of maintaining interaction with fellow airport-sponsored noise organizations in the Bay Area. This has led to joint letters to the FAA and other organizations regarding noise mitigation issues, joint trips to Northern California TRACON, and understanding how all of the regional airports interact with regards to airspace and noise mitigation. Santa Clara County does not currently have a sanctioned group focused on aircraft noise issues, however there are studies being commissioned by municipalities in Santa Clara County regarding SFO-related aircraft operations. In the past, Mineta San Jose International Airport (SJC) had a noise forum that met on a quarterly basis; the noise forum stopped meeting and all noise-related issues are now heard at its Airport Commission meetings.

**Present to Roundtable:** This item is anticipated to be presented to the Roundtable following interactions with regional groups.

**Staff Assigned:** Roundtable leadership and staff.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** None.

[2] http://flyquietoak.com/pages/noise-forum/noise-forum.html

AI-5. Develop Relationships with State and National Roundtables/Noise Forums

**Item Description:** Maintain contact with other roundtables/noise forums via correspondence relating to Roundtable issues on a state and national level.

**Background:** The Roundtable has a history of maintaining interaction with national and regional airport-sponsored noise organizations through sharing correspondence relating to current noise issues including pending legislation, funding allocation, or new technology.

**Present to Roundtable:** This item is anticipated to be in the correspondence section of the Roundtable packets as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** None.

AI-6. Send Roundtable Member(s) to Roundtables/Noise Forums or Technical Conferences

**Item Description:** Maintain knowledge base of the Roundtable and its members by sending members to technical conferences or other roundtables/noise forums.

**Background:** The Roundtable has a history of maintaining a strong knowledge base of aircraft noise theory that is communicated to the membership. This has been done through conducting Noise 101 sessions, sending Roundtable members to Northern California TRACON, and to technical conferences.

**Present to Roundtable:** Post-conference attendance updates

**Staff Assigned:** Roundtable.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** Anticipated budget of $2,000/member to attend the AAAE/ACI-NA Airport Noise Conference typically held in the fall, or the UC Davis Aviation Noise and Air Quality Symposium in the spring. Local meeting attendance not anticipated to have a budgetary impact.

AI-7. Send Roundtable Coordinator to LAX Community Noise Roundtable[3] and/or SAN Airport Noise Advisory Committee[4] Meetings

**Item Description:** Continue to correspond and maintain understanding of the Los Angeles International Airport (LAX) Community Noise Roundtable and San Diego International Airport (SAN) Airport Noise Advisory Committee structure and issues by making a yearly site visit.

**Background:** The Roundtable keeps in contact with other airport noise organizations, including the Los Angeles International Airport (LAX) Community Noise Roundtable and San Diego International Airport (SAN) Airport Noise Advisory Committee. In the past, the Roundtable has sent the Coordinator to a meeting to observe their practices and exchange information with their staff.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** Anticipated budget of $1,000 for the Roundtable Coordinator.

AI-9. Communications and Educational Strategies for Accessibility

**Item Description:** The Roundtable will explore and develop intuitive and easy to understand communication tools to discuss and deliver aviation noise studies, reports and relevant information to the public. Through the use of the Roundtable's website, include resources such as a Frequently Asked Questions (FAQ) page, links to other resources and research available online (such as Noise Quest[5], FAA, and other aircraft noise related webpages).

**Background:** Roundtable members, representing their respective constituents, are often faced with the challenge of communicating complex technical issues that relate to noise impacts many of them experience in their communities. The Roundtable endeavors to provide those who participate with clear and understandable information on technical issues the Roundtable discusses in an effort to better inform the public and allow for more effective engagement.

**Staff Assigned:** Roundtable staff, Roundtable Operations and Efficiencies Subcommittee.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocation:** None; updates will utilize existing staff resources where possible, or additional funding to be allocated if necessary to be reviewed/approved by the Roundtable.

[3] http://www.lawa.org/LAXNoiseRoundTable.aspx
[4] http://www.san.org/Airport-Noise/Initiatives
[5] http://www.noisequest.psu.edu/

## LEGISLATIVE ITEMS

LI-1. Ongoing Research of Federal, State, and International Noise Legislation

**Item Description:** The Roundtable will continue its research of federal, state, and international proposed noise legislation to aid in the proactive engagement on such issues to determine any implications on operation and issues at the Airport and associated noise affects.

**Background:** The Roundtable monitors legislative issues on state, federal, and international levels through its Legislative Subcommittee. In order to be as effective as possible, up-to-date resources are necessary to be informed and effective in their role. Currently, this is partly done through a subscription to the Airport Noise Report (ANR) as well as monitoring legislation through the Federal Register and other list services. In addition, the Roundtable monitors noise regulations suggested by the Committee on Aviation Environmental Protection (CAEP) and International Civil Aviation Organization (ICAO) as voluntary or mandatory. ICAO is an organization that recommends best practices and adopts standards for the aviation industry, including noise as it relates to aircraft operations. This research could result in correspondence from the Roundtable to the legislative sponsor regarding any positive or negative impact of the legislation.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** The yearly subscription to ANR is $850. Other expenses for resources that would assist in monitoring and research legislative issues will be explored by the Legislative Subcommittee and additional funding to be allocated will be reviewed/approved by the Roundtable.

LI-2. Opportunities for Proactive Participation in Legislative and Regulatory Advocacy

**Item Description:** Maintain understanding of regional and national aircraft noise issues and engage in proactive legislative and regulatory advocacy to further Roundtable objectives and goals for aircraft noise mitigation. Explore the potential of joining/partnering with local, regional, and national as well as grassroots groups to support legislation and research related to quieter aircraft, procedures, and technology. Groups such as the National Organization to Insure a Sound Controlled Environment (N.O.I.S.E.), California League of Cities, and Airports Council International (ACI) are potential organizations to consider, but additional research and outreach will also be considered.

**Background:** The Roundtable, as well as the County of San Mateo, has historically been involved with N.O.I.S.E.. The Roundtable in its endeavors to proactively pursue legislative solutions can investigate opportunities to participate and collaborate with N.O.I.S.E. and the League of Cities to make presentations regarding aircraft noise issues. Through the Legislative Subcommittee, the Roundtable can further investigate the benefits of membership and participation with these groups, as well as other groups and organizations.

**Present to Roundtable:** As required and as legislative information is available.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** Proposed allocations will be presented to the Roundtable for approval once a recommendation has been presented by the Legislative Subcommittee as to which group is best suited to aid the Roundtable's legislative objectives.

LI-3. Pursue Potential Legislative Solutions

**Item Description:** Work with elected representatives to support/sponsor legislative solutions mitigate aircraft noise impact.

**Background:** The Roundtable often faces challenges in developing solutions as a result of current and potentially outdated regulations that create constraints in exploring meaningful noise mitigation. The Airport Noise and Capacity Act of 1990 (ANCA), which does not allow SFO to impose flight curfews, is often citied in discussions regarding potential legislative updates. The Legislative Subcommittee, will explore the possibility of updating, amending or replacing ANCA and will also discuss other legislative updates including newer equipment requirements utilized internationally.

**Present to Roundtable:** As required and as legislative information is available.

**Staff Assigned:** Legislative Subcommittee

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** None.

## RESEARCH ITEMS

RI-1. Guest Speakers

**Item Description:** The Roundtable will continue its efforts to have guest speakers invited to Roundtable meetings to present information regarding a topic of interest to the Roundtable.

**Background:** In an effort to keep current on trends in noise and airports, the Roundtable has invited guest speakers to present on occasion when opportunity and time allows. It is the goal of the Roundtable to continue inviting speakers to the meetings in an effort to increase the membership and public's understanding of current issues. The Roundtable staff and Airport staff will recommend speakers, and the Roundtable members are also encouraged to request experts in a specific topic to speak.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** None.

RI-2. Ground Based Aircraft Noise Effects

**Item Description:** Determine the cause, impacts, and potential long term solutions to backblast noise, auxiliary power unit (APU) noise and other aircraft associated low frequency noise.

**Background:** Backblast, auxiliary power unit (APU), and other low frequency aircraft noise impact those communities in direct proximity to the Airport. This is an ongoing issue for communities such as Millbrae, Burlingame, and San Bruno. The Roundtable should investigate any possible solution that may exist at present or discuss potential innovations that mitigate these noise impacts.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable and Technical Consultant in conjunction with Airport Aircraft Noise Abatement.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** Budget to be determined if additional studies need to be conducted beyond capabilities of the Airport's Aircraft Noise Abatement staff.

RI-3. Use of Supplemental Noise Metrics to Evaluate Noise Outside of the 65 CNEL

**Item Description:** The Roundtable will research the feasibility of using supplemental noise metrics outside of the 65 dB CNEL to determine the impact of aircraft operations.

**Background:** The 65 dB CNEL is the federally and state accepted metric to determine impacts from aircraft noise as well as eligibility for sound insulation programs. As aircraft become quieter, the 65 dB CNEL noise contour becomes smaller in size, reducing the "affected areas" as defined by federal and state standards. As a response to this, airports have studied utilizing supplemental metrics, which show noise levels at various locations in the community utilizing metrics including LMax, SEL, Leq, TA, NA, etc.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** None.

RI-4. Airport Cooperative Research Program (ACRP) Participation and Review of Published Research Reports

**Item Description:** The Roundtable has the option to become involved with the Airport Cooperative Research Program (ACRP) in three ways: 1) submit a problem statement to the ACRP for an item to study in depth; 2) submit applications to serve on an ACRP panel; or 3) support research statements to carry forward. Once relevant research reports have been published by ACRP, the Roundtable should review and discuss.

**Background:** ACRP is a subset of the Transportation Research Board (TRB) that studies issues relating to airport operations, including noise abatement. Each year ACRP solicits problem statements relating to a global issue that affect airports throughout the country. ACRP chooses the problem statements to then turn into research projects. Each research project is comprised of a panel of experts and a consultant that completes the research document under the guidance of the expert panel.
In addition to ACRP soliciting for proposals, expert panel members are also required each year. If there are research projects that are applicable to community noise groups or noise mitigation, members of the Roundtable are encouraged to apply to these expert panels. The expert panels meet 2-3 times per project in Washington, D.C.

**Present to Roundtable:** ACRP problem statements are solicited in the spring and applications to serve on an ACRP panel open up in the fall.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 3 – Support Aircraft Noise Reduction Legislation and Research.

**Budget Allocated:** No extra budget effort; travel expenses are reimbursed by ACRP.

RI-5. Receive Updates of the Residential Sound Insulation Program

**Item Description:** The Roundtable will receive updates on the status of the residential sound insulation program at the Airport on a biannual basis to include items such as: number of residences within the currently approved Noise Exposure Map (NEM) that are not insulated; number of residences that declined participation in the program; and estimated number of residences currently being insulated. This information will be added on the Roundtable's website under the FAQ section.

**Background:** The Roundtable has received updates from the Airport over the course of the residential sound insulation program. The program's focus is to find and inform eligible homeowners that their residence can receive sound insulation treatments if they meet a two-step eligibility process. The first step is to determine if the residence is within the 65 dB CNEL noise contour of the latest NEM. The second step is to determine if the residences' interior noise level is at or above 45 dB CNEL. The Airport latest NEM was approved on January 29, 2016.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable, Airport.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** No extra budget effort for Roundtable staff.

RI-6. Receive Updates of the Unmanned Aerial System in the National Airspace System

**Item Description:** The Roundtable's technical consultant will monitor legislation and research related to Unmanned Aerial Systems (UAS) within the National Airspace System (NAS) that is controlled by the Federal Aviation Administration and where applicable, by local legislation. The Roundtable will receive updates on a biannual basis.

**Background:** UAS are any unmanned aerial vehicle, drone, or system that is flown remotely by a pilot or via an onboard computer system. Rules and regulations for UAS operations are in its infancy. This program item will monitor uses of UAS and FAA regulations regarding their use and noise abatement regulations.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable and Technical Consultant.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** No extra budget effort for Roundtable staff.

RI-7. Research Expanded Membership Beyond Current Membership Area

**Item Description:** Investigate the expansion of the Roundtable membership to include other communities affected by SFO noise issues. The analysis will focus on the opportunities and challenges associated with an expanded membership.

**Background:** In order to address the regional impacts associated with the implementation of NextGen, the Roundtable may consider allowing additional members from cities outside of the current membership cities to participate on the Roundtable. The current membership on the Roundtable is defined by the Memorandum of Understanding Agreement.

**Present to the Roundtable:** As needed when discussions occur.

**Staff Assigned:** Roundtable Operations and Efficiencies Subcommittee.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** None.

RI-8. Research Aircraft Noise as a Health Issue

**Item Description:** Identify national and international research updates on the health effects related to aircraft noise. Further identify research gaps and encourage research in these areas.

**Background:** There is well-documented detrimental effects of noise on the health of the members of affected communities. Documented in peer-reviewed scientific journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults and children.

**Present to the Roundtable:** As needed when discussions occur.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** None

## AIRCRAFT OPERATIONS/AIRSPACE

AO-1. Northern California Metroplex Project and the FAA Initiative

**Item Description:** The Roundtable will aggressively pursue status updates and take a more proactive approach to the implementation and modification of any flight procedures in the Northern California Metroplex Project or the 29 adjustments in the FAA Initiative specific to the Airport.

**Background:** The Northern California Metroplex is the update of the airspace in the Bay Area. Federal regulations required the FAA to complete an Environmental Assessment (EA) for the project, determining any environmental impacts to the project study area. The EA was released in March 2014 and the Record of Decision on the EA was published in July 2014. All Metroplex procedures related to SFO operations are operational at this time.

The FAA Initiative document was released in November 2014 and contained 29 adjustments that were under the purview of the Roundtable; of this total, 13 were deemed by the FAA as "Feasible" while 16 were deemed by the FAA as "Not Feasible." The Roundtable released a detailed documented response to the FAA Initiative on November 17, 2016.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required and updates to the Roundtable will be from Roundtable staff or the FAA.

**Staff Assigned:** Roundtable and Technical Consultant.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** None.

AO-2. Woodside Optimized Profile Descents

**Item Description:** The Roundtable will receive briefings on the Woodside Optimized Profile Descents (OPD).

**Background:** The Airport currently publishes the weekly Woodside VOR report on its website. This report shows the number of aircraft that flew over the Woodside VOR between the hours of 10:30 p.m. – 6:30 a.m. This Work Program item would require the Airport to provide a report on aircraft that utilized the OPD approach between these hours.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** None.

AO-3. SSTIK and PORTE Departures

**Item Description:** The Roundtable will continue to monitor operations on the SSTIK and PORTE departures.

**Background:** As part of the Metroplex, the SSTIK departure procedure replaced the PORTE departure for all aircraft equipped to fly Area Navigation (RNAV) procedures. Both departures fly over portions of the City of Brisbane. In 2012-2013, the Roundtable resumed its work with Northern California TRACON, the Airport tower, airlines, and Airport Aircraft Noise Abatement staff to determine why the number of aircraft flying over southern portions of Brisbane increased. This Work Program item will continue to monitor this issue and initiate outreach to stakeholders that can assist with mitigation.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** None.

AO-4. Visit Northern California TRACON

**Item Description:** The Roundtable membership will visit the Northern California TRACON facility in Mather, California.

**Background:** Northern California TRACON is a radar approach facility that controls aircraft movements in the bay area and other portions of Northern California and Nevada. Northern California TRACON is a key stakeholder for the Roundtable and has historically worked with the Roundtable to implement noise abatement procedures when traffic allows. This site visit will provide members of the Roundtable with an understanding of how Northern California TRACON operates and watch aircraft movements in real time.

**Present to Roundtable:** Schedule a trip in the future; present a trip report to the Roundtable following the trip.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 4 – Address Community Concerns.

**Budget Allocated:** The Roundtable's contribution on previous joint trips with the Oakland International Airport (OAK) Noise Forum has been approximately $550, which included transportation and meals for up to 10-12 Roundtable members. For the 2018 trip, the Roundtable's contribution would be approximately $1,000 for transportation and meals as the primary coordinator of the trip.

AO-5. Aircraft Use of Satellite Procedures

**Item Description:** Monitor additional uses of satellite-based procedures to enhance operations as they are applicable to the Airport.

**Background:** As referenced in Work Program Item AO-1, the airspace related to operations at the Airport was part of the Metroplex airspace project. This project identified numerous RNAV procedures to enhance existing arrival and departure procedures. This Work Program item will further define procedures to help noise abatement efforts at the Airport, including Required Navigation Performance (RNP). This item would be collaborative with the Airport's Aircraft Noise Abatement office and at least one airline to assist with procedure enhancements. This item has moved from information to research/action.

**Present to Roundtable:** As required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** None.

AO-6. Airbus A320 Aircraft Vortex Generator

**Item Description:** Work with the Airport's Aircraft Noise Abatement office to equip carriers that use the Airbus A320/319 family of aircraft with vortex generators for the underwing fuel vent.

**Background:** Research has shown that Airbus A320 aircraft have a fuel vent on the underside of each wing. At certain altitudes and speeds, air coming in contact with these vents results in a wind vortex that emits a high-pitched whine noise. This is typically heard 20-30 miles away from an airport on arrival. The Airport's Aircraft Noise Abatement office has researched the solution and determined that a fix would cost approximately $3,000.00, which includes labor and parts to install. The Roundtable will work with the Airport's Aircraft Noise Abatement office to advance this effort.

**Present to Roundtable:** As required.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 2 – Airline Outreach.

**Budget Allocated:** No extra budget effort for Roundtable staff.

AO-7. Nighttime Procedures Plan

**Item Description:** The Roundtable will continue to discuss it's nighttime procedures plan with FAA representatives in an effort to refine the nighttime recommendations and plan as needed.

**Background:** The Roundtable has compiled a comprehensive Nighttime Procedures Plan which includes recommendations for new and revised flight procedures, filing for alternative flight paths and requests to the professional air traffic controllers to use their best efforts to manage traffic with a goal of 100% of all nighttime flights departing and arriving over water such as the Pacific Ocean and Bay.

**Present to Roundtable:** This item will be reviewed by the Roundtable as required and updates to the Roundtable will be from Roundtable staff or the FAA.

**Staff Assigned:** Roundtable.

**Strategic Goal:** 1 – Aircraft Procedures.

**Budget Allocated:** None.


# Airport Director's Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting

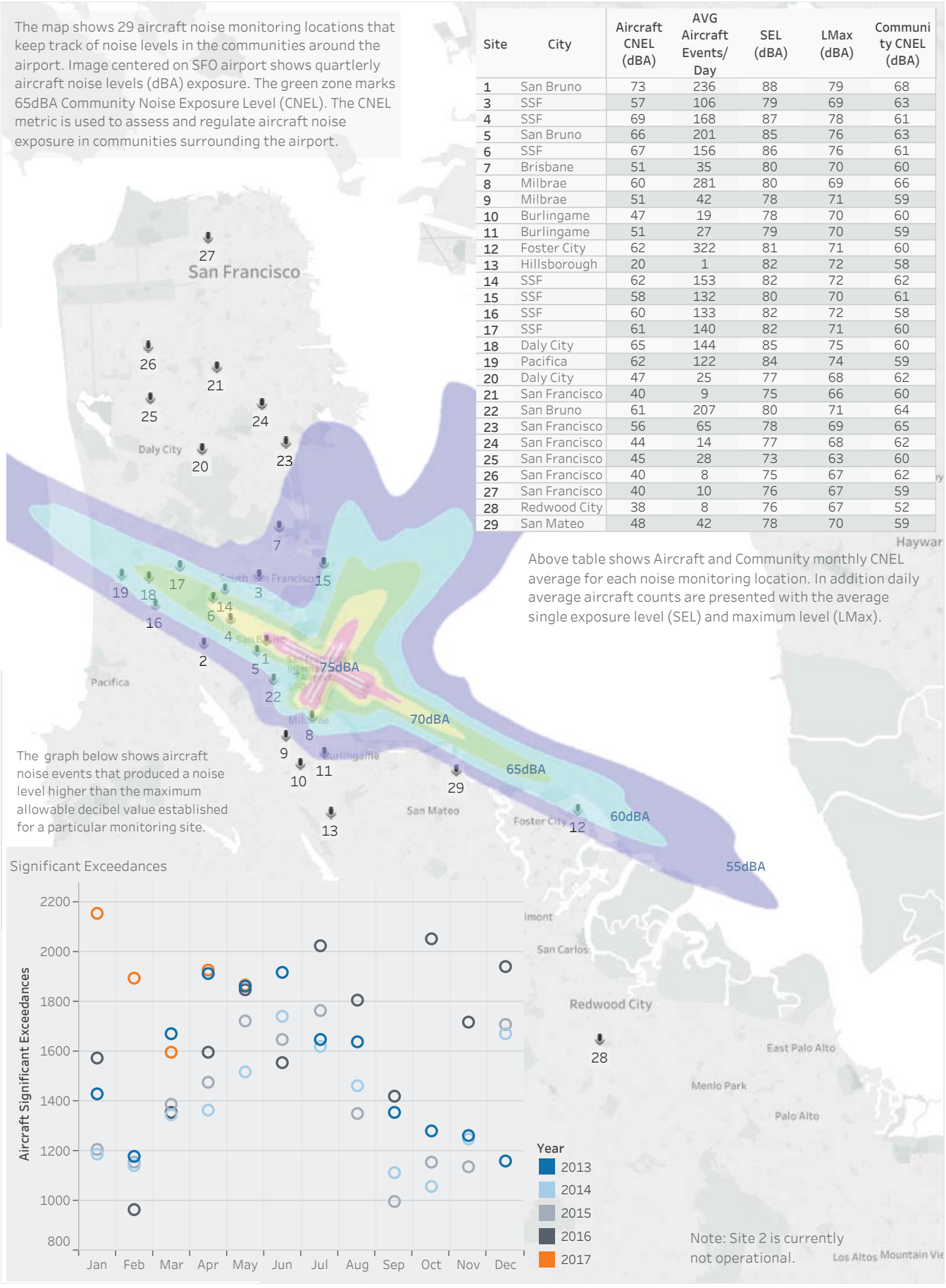
Aircraft Noise Abatement Office
May 2017

SFO San Francisco International Airport

# Aircraft Noise Monitoring System

May 2017

The map shows 29 aircraft noise monitoring locations that keep track of noise levels in the communities around the airport. Image centered on SFO airport shows quartlerly aircraft noise levels (dBA) exposure. The green zone marks 65dBA Community Noise Exposure Level (CNEL). The CNEL metric is used to assess and regulate aircraft noise exposure in communities surrounding the airport.




| Site | City | Aircraft CNEL (dBA) | AVG Aircraft Events/ Day | SEL (dBA) | LMax (dBA) | Community CNEL (dBA) |
|---|---|---|---|---|---|---|
| 1 | San Bruno | 73 | 236 | 88 | 79 | 68 |
| 3 | SSF | 57 | 106 | 79 | 69 | 63 |
| 4 | SSF | 69 | 168 | 87 | 78 | 61 |
| 5 | San Bruno | 66 | 201 | 85 | 76 | 63 |
| 6 | SSF | 67 | 156 | 86 | 76 | 61 |
| 7 | Brisbane | 51 | 35 | 80 | 70 | 60 |
| 8 | Milbrae | 60 | 281 | 80 | 69 | 66 |
| 9 | Milbrae | 51 | 42 | 78 | 71 | 59 |
| 10 | Burlingame | 47 | 19 | 78 | 70 | 60 |
| 11 | Burlingame | 51 | 27 | 79 | 70 | 59 |
| 12 | Foster City | 62 | 322 | 81 | 71 | 60 |
| 13 | Hillsborough | 20 | 1 | 82 | 72 | 58 |
| 14 | SSF | 62 | 153 | 82 | 72 | 62 |
| 15 | SSF | 58 | 132 | 80 | 70 | 61 |
| 16 | SSF | 60 | 133 | 82 | 72 | 58 |
| 17 | SSF | 61 | 140 | 82 | 71 | 60 |
| 18 | Daly City | 65 | 144 | 85 | 75 | 60 |
| 19 | Pacifica | 62 | 122 | 84 | 74 | 59 |
| 20 | Daly City | 47 | 25 | 77 | 68 | 62 |
| 21 | San Francisco | 40 | 9 | 75 | 66 | 60 |
| 22 | San Bruno | 61 | 207 | 80 | 71 | 64 |
| 23 | San Francisco | 56 | 65 | 78 | 69 | 65 |
| 24 | San Francisco | 44 | 14 | 77 | 68 | 62 |
| 25 | San Francisco | 45 | 28 | 73 | 63 | 60 |
| 26 | San Francisco | 40 | 8 | 75 | 67 | 62 |
| 27 | San Francisco | 40 | 10 | 76 | 67 | 59 |
| 28 | Redwood City | 38 | 8 | 76 | 67 | 52 |
| 29 | San Mateo | 48 | 42 | 78 | 70 | 59 |

Above table shows Aircraft and Community monthly CNEL average for each noise monitoring location. In addition daily average aircraft counts are presented with the average single exposure level (SEL) and maximum level (LMax).

The graph below shows aircraft noise events that produced a noise level higher than the maximum allowable decibel value established for a particular monitoring site.

Significant Exceedances




Note: Site 2 is currently not operational.

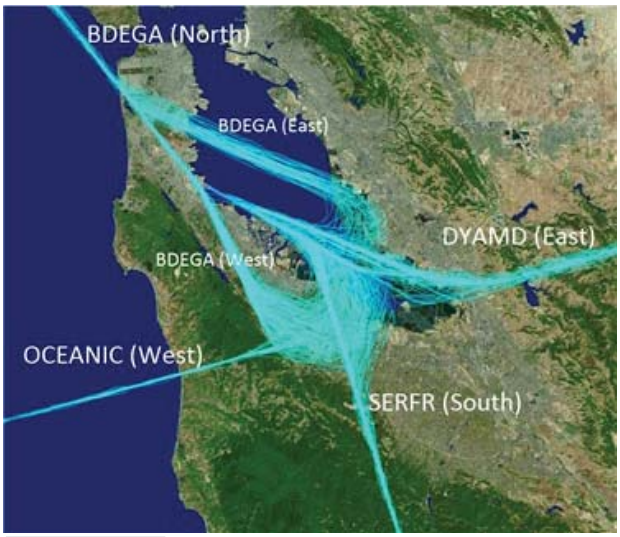
# Monthly Operations Summary

## May 2017

| 38,002 | 1,226 | 36,895 | -1.5% |
|---|---|---|---|
| Monthly Operations | Average Daily Operations | 12 Month AVG | YOY Growth |

### May 2017 Average Day (Hourly)


### Major Arrival Routes (West Flow)




| | |
|---|---|
| BDEGA | 24% |
| DYAMD | 41% |
| OCEANIC | 6% |
| SERFR | 30% |

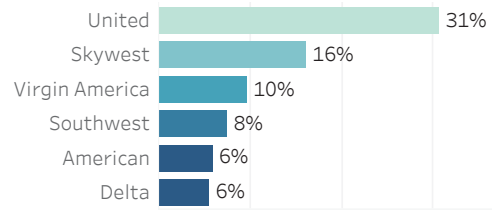
| | |
|---|---|
| BDEGA East | 25% |
| BDEGA West | 75% |

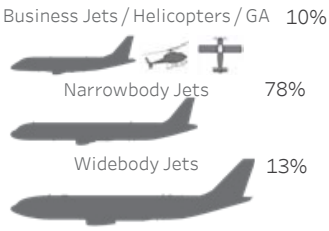
Top Destinations

| Los Ang.. | Seattle | Las Vegas | Chicago | San Diego |
|---|---|---|---|---|
| 9.4% | 4.3% | 3.8% | 3.2% | 3.5% |

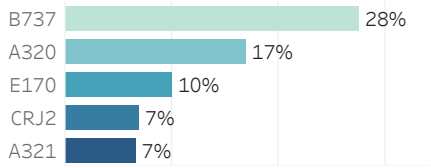
West Flow 100%

### Airlines with the Most Operations

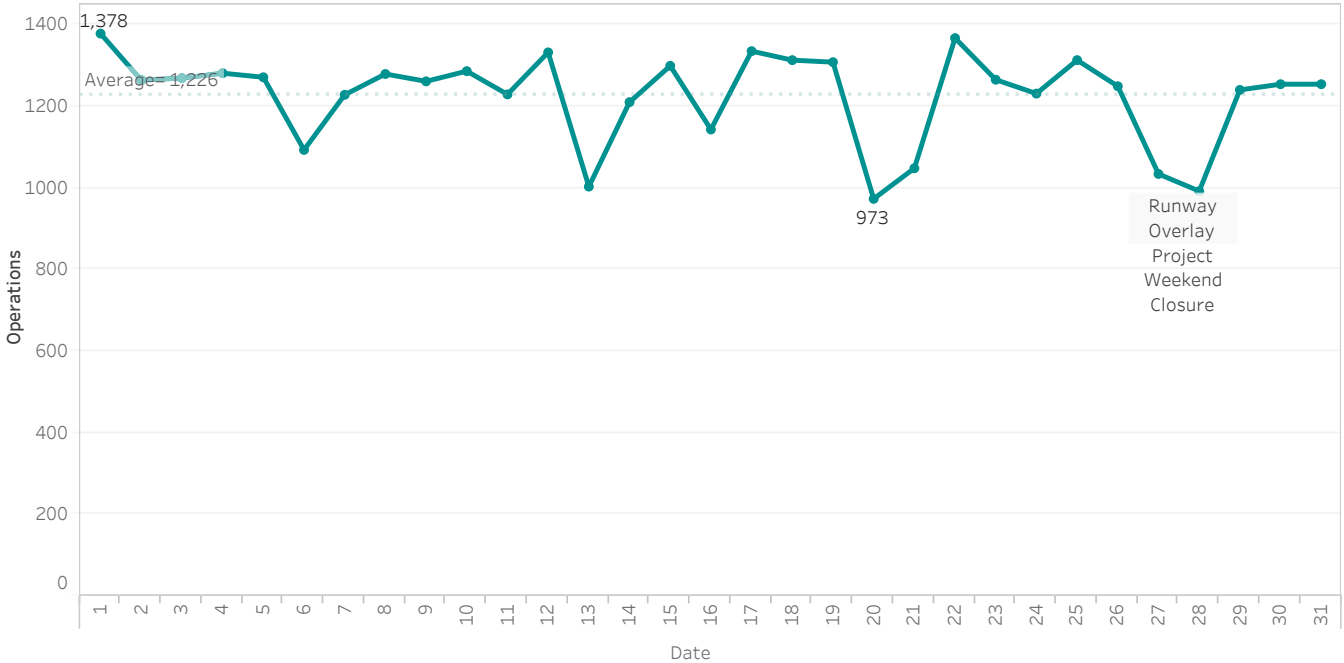



### Most Utilized Aircraft Types




### Daily Aircraft Operations



# Runway Usage and Nighttime Operations

Monthly runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airline nighttime power runup counts shown below.

### Runway Utilization (all hours)

| | Arrivals | Departures |
|---|---|---|
| 01 L/R | | 68% 12,031 |
| 10 L/R | | 0% 3 |
| 28 L/R | 100% 17,987 | 32% 5,788 |

### Late Night Preferential Runway Use (1 am - 6 am)

| | Departures |
|---|---|
| 10 L/R | 1% 4 |
| 01 L/R | 37% 188 |
| 28 L/R | 62% 311 |

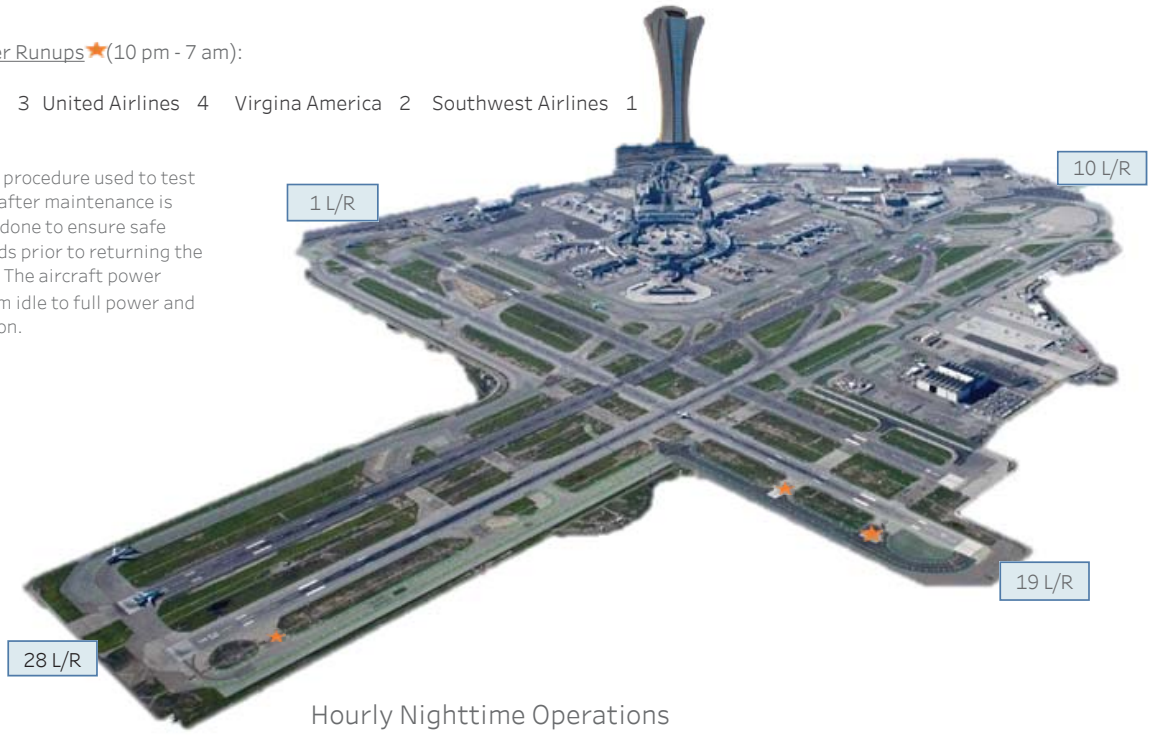
### 28 L vs R

| Arrivals | |
|---|---|
| 28L | 28R |
| 38% | 62% |
| Night (10 pm - 7 am) | |
| 13% | 87% |

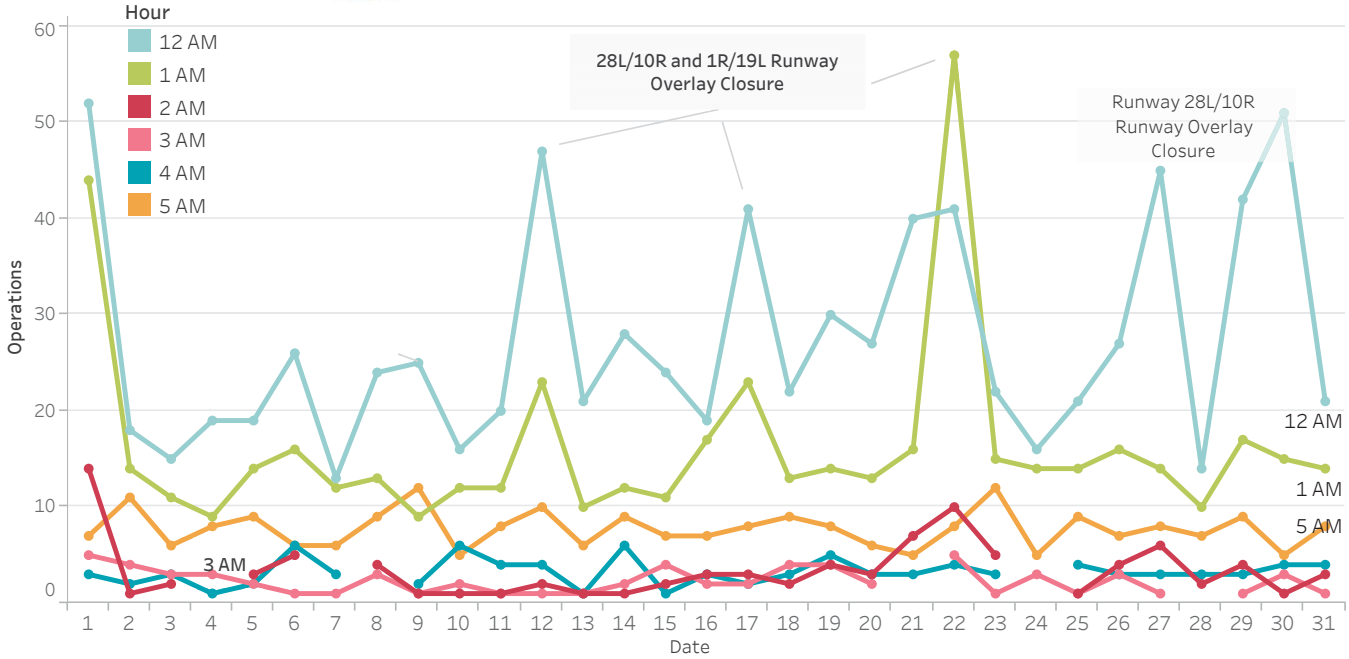
Nighttime Power Runups (10 pm - 7 am):

American Airlines 3 United Airlines 4 Virgina America 2 Southwest Airlines 1

A power runup is a procedure used to test an aircraft engine after maintenance is completed. This is done to ensure safe operating standards prior to returning the aircraft to service. The aircraft power settings range from idle to full power and may vary in duration.




### Hourly Nighttime Operations



# Noise Reports

May 2017

| | | Noise Reporters / Noise Reports |
|---|---|---|
| Roundtable Communities | Atherton | 11 | 463 |
| | Belmont | 6 | 1,420 |
| | Brisbane | 51 | 4,368 |
| | Burlingame | 11 | 66 |
| | Daly City | 14 | 2,272 |
| | Foster City | 8 | 979 |
| | Half Moon Bay | 8 | 165 |
| | Hillsborough | 6 | 10 |
| | Menlo Park | 44 | 2,946 |
| | Millbrae | 1 | 2 |
| | Pacifica | 64 | 8,900 |
| | Portola Valley | 55 | 9,487 |
| | Redwood City | 23 | 2,086 |
| | San Bruno | 4 | 69 |
| | San Carlos | 5 | 12 |
| | San Francisco | 49 | 3,986 |
| | San Mateo | 15 | 1,380 |
| | South San Francisco | 24 | 1,268 |
| | Woodside | 23 | 1,518 |
| Other Communities | Alameda | 2 | 32 |
| | Aptos | 12 | 628 |
| | Ben Lomond | 3 | 140 |
| | Berkeley | 2 | 410 |
| | Boulder Creek | 8 | 295 |
| | Capitola | 21 | 2,860 |
| | Carmel | 2 | 208 |
| | Cupertino | 4 | 1,699 |
| | East Palo Alto | 3 | 34 |
| | Felton | 13 | 635 |
| | Fremont | 4 | 265 |
| | La Selva Beach | 1 | 40 |
| | Lafayette | 2 | 64 |
| | Los Altos | 241 | 30,881 |
| | Los Altos Hills | 43 | 9,924 |
| | Los Gatos | 164 | 33,417 |
| | Montara | 3 | 21 |
| | Moraga | 2 | 285 |
| | Morgan Hill | 2 | 481 |
| | Mountain View | 91 | 10,068 |
| | Oakland | 48 | 11,648 |
| | Orinda | 1 | 438 |
| | Palo Alto | 288 | 58,708 |
| | Piedmont | 1 | 1 |
| | San Jose | 5 | 48 |
| | San Ramon | 1 | 1 |
| | Santa Clara | 1 | 19 |
| | Santa Cruz | 139 | 23,092 |
| | Saratoga | 11 | 883 |
| | Scotts Valley | 95 | 14,794 |
| | Soquel | 94 | 8,079 |
| | Sunnyvale | 34 | 1,146 |
| | Watsonville | 1 | 191 |
| Total | | 1,764 | 252,832 |

1,980
Noise Reporters (12 month AVG)

272,655
Noise Reports (12 Month AVG)

76
New Reporters

Santa Cruz
New Reporters Top City

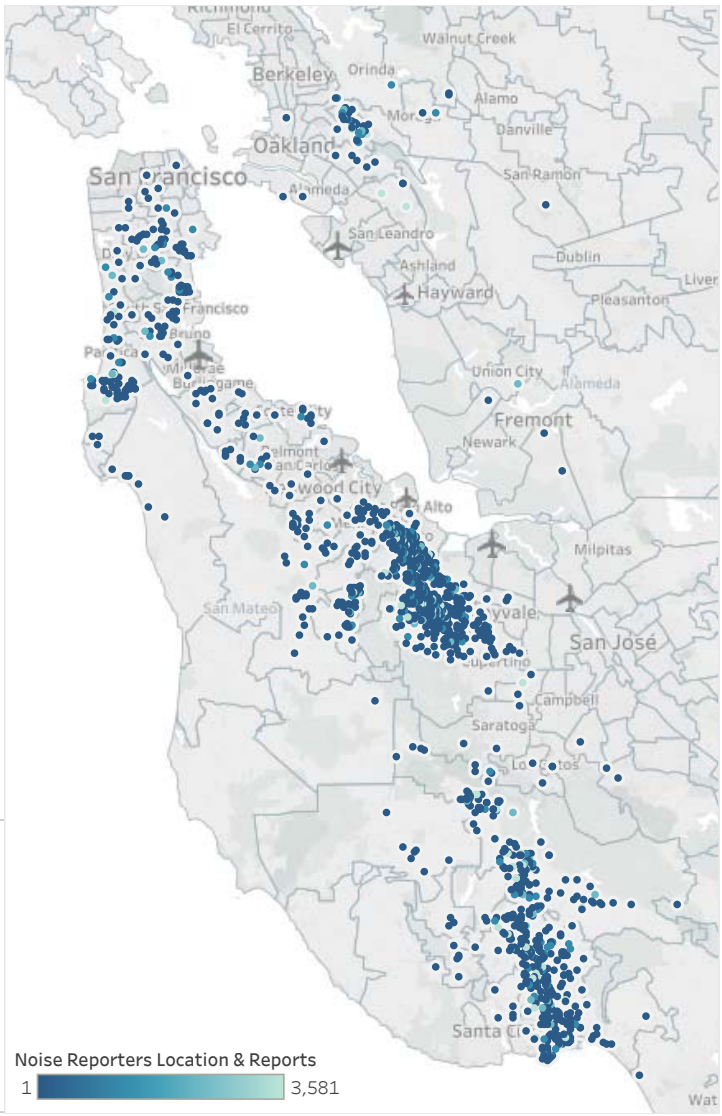
85 miles
Furthest Report

7
Reports per SFO Operation

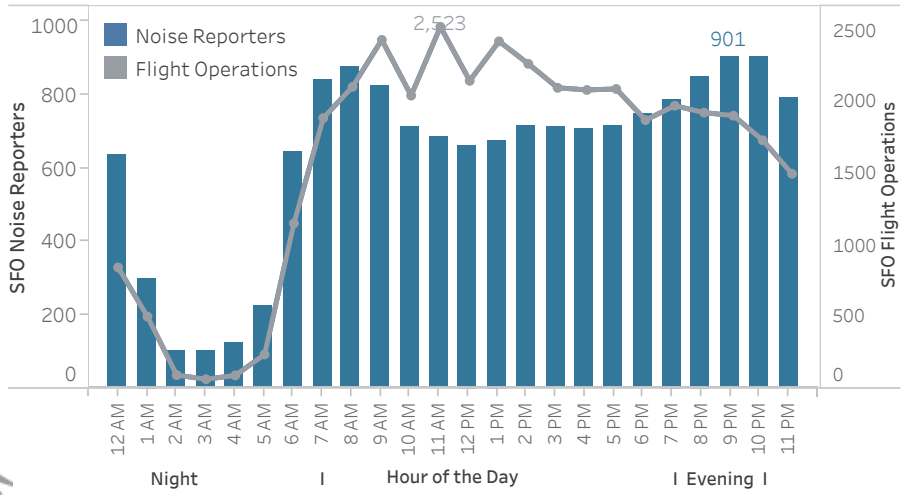
B737
A320
CRJ2
Top Aircraft Type

KAL213*
JBU736
CMP382*
Top Flight Number
*Night

## Noise Reporters Location Map




## Hourly Noise Reporters vs. Flight Operations




99% of noise reports correlate to a flight origin/destination airport:


Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified default city values.

Source: SFO Intl Airport Noise Monitoring System

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# Airport Director's Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
May 2017

SFO San Francisco International Airport

**Monthly Noise Exceedance Report**
San Francisco International Airport -- Director's Report
Period: **May 2017**

| Airline | | Noise Exceedances: Total Noise Exceedances | Total Operations per Month | Exceedances per 1,000 Operations | Score |
|---|---|---|---|---|---|
| SkyWest | SKW | 52 | 5,922 | 9 | 9.97 |
| Air Canada | ACA | 8 | 710 | 11 | 9.96 |
| Compass | CPZ | 13 | 941 | 14 | 9.95 |
| British Airways | BAW | 2 | 120 | 17 | 9.94 |
| Virgin America | VRD | 85 | 3,577 | 24 | 9.91 |
| volaris | VOI | 2 | 84 | 24 | 9.91 |
| Alaska | ASA | 28 | 1,091 | 26 | 9.90 |
| jetBlue | JBU | 33 | 1,061 | 31 | 9.88 |
| Southwest | SWA | 97 | 2,786 | 35 | 9.87 |
| Delta | DAL | 71 | 2,038 | 35 | 9.87 |
| United | UAL | 478 | 11,300 | 42 | 9.84 |
| American Airlines | AAL | 99 | 2,204 | 45 | 9.83 |
| FedEx | FDX | 5 | 88 | 57 | 9.78 |
| WestJet | WJA | 11 | 176 | 63 | 9.76 |
| Frontier | FFT | 27 | 393 | 69 | 9.74 |
| Nippon Cargo Airlines | NCA | 4 | 50 | 80 | 9.69 |
| CargoLogicAir | CLU | 1 | 12 | 83 | 9.68 |
| Copa Airlines | CMP | 9 | 97 | 93 | 9.65 |
| airberlin | BER | 6 | 58 | 103 | 9.61 |
| Etihad | ETD | 3 | 26 | 115 | 9.56 |
| Hawaiian | HAL | 16 | 126 | 127 | 9.52 |
| Air India | AIC | 8 | 52 | 154 | 9.41 |
| allegiant | AAY | 1 | 6 | 167 | 9.36 |
| Avianca | TAI | 16 | 85 | 188 | 9.28 |
| Aeromexico | AMX | 36 | 174 | 207 | 9.21 |
| Volga-Dnepr Group | VDA | 2 | 8 | 250 | 9.05 |
| China Airlines | CAL | 31 | 119 | 261 | 9.01 |
| Asiana Airlines | AAR | 25 | 75 | 333 | 8.73 |
| China Southern Airlines | CSN | 21 | 62 | 339 | 8.71 |
| Cathay Pacific | CPA | 55 | 137 | 401 | 8.47 |
| Singapore Airlines | SIA | 54 | 124 | 435 | 8.34 |
| EVA Air | EVA | 62 | 131 | 473 | 8.20 |
| Atlas Air | GTI | 70 | 137 | 511 | 8.05 |
| Air New Zealand | ANZ | 32 | 61 | 525 | 8.00 |
| WOW | WOW | 21 | 30 | 700 | 7.33 |
| Korean Air | KAL | 120 | 169 | 710 | 7.29 |
| Philippines | PAL | 96 | 90 | 1,067 | 5.93 |
| SkyLease Cargo | KYE | 3 | 2 | 1,500 | 4.28 |
| Kalitta Air | CKS | 45 | 26 | 1,731 | 3.40 |
| Qantas | QFA | 118 | 45 | 2,622 | 0.00 |
| **TOTAL** | | **1,866** | **34,393** | **13,675** | |

**Noise Exceedance Quality Rating**

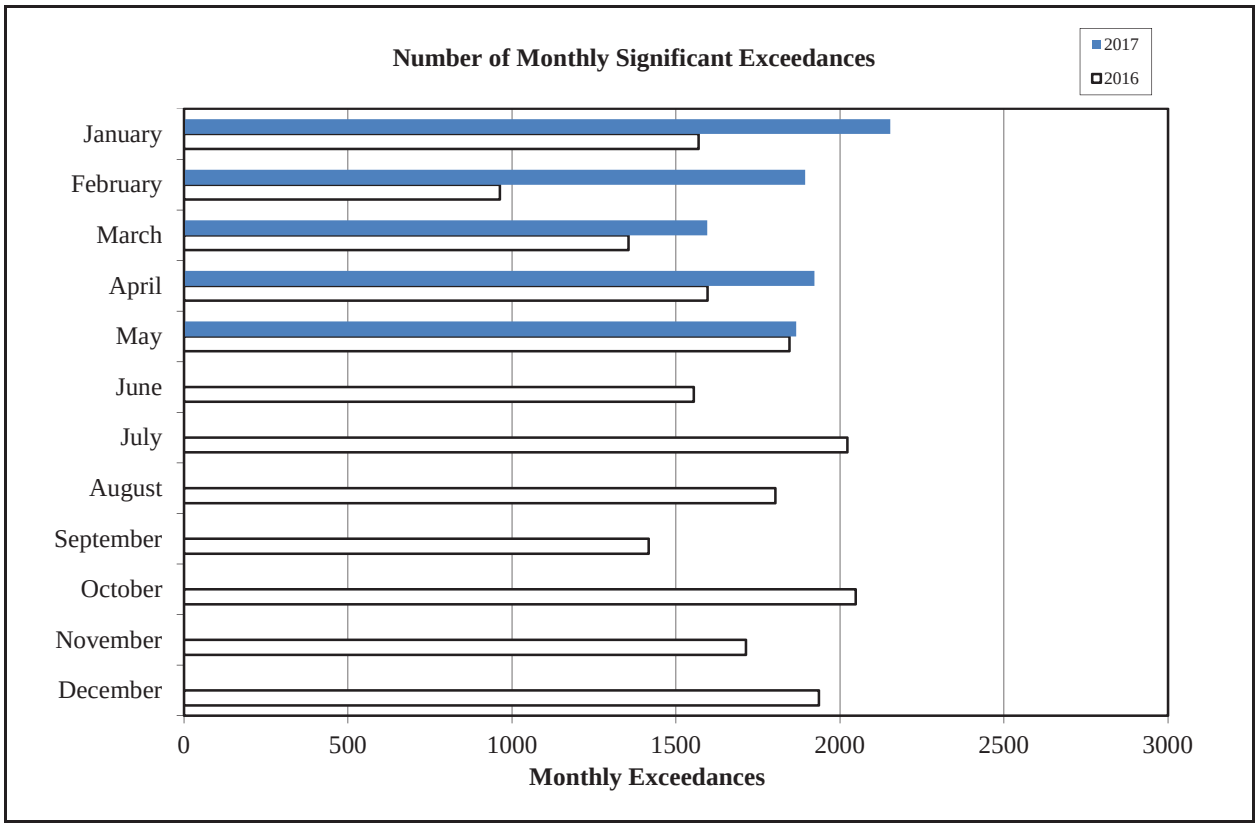

*Source: SFO Noise Abatement Office*

**Historical Significant Exceedances Report**
San Francisco International Airport -- Director's Report
Period: **May 2017**

San Francisco International Airport

| Month | Number of Monthly Significant Exceedances 2013 | 2014 | 2015 | 2016 | 2017 | Change from Last Year |
|---|---|---|---|---|---|---|
| **January** | 1,428 | 1,184 | 1,204 | 1,569 | 2,153 | **584** |
| **February** | 1,176 | 1,141 | 1,151 | 963 | 1,894 | **931** |
| **March** | 1,671 | 1,345 | 1,384 | 1,355 | 1,595 | **240** |
| **April** | 1,910* | 1,362 | 1,475 | 1,596 | 1,922 | **326** |
| **May** | 1,859* | 1,515 | 1,718 | 1,846 | 1,866 | **20** |
| **June** | 1,915 | 1,740 | 1,645 | 1,554 | | |
| **July** | 1,647 | 1,619 | 1,763*** | 2,023 | | |
| **August** | 1,638** | 1,460 | 1,348 | 1,803 | | |
| **September** | 1,352 | 1,111 | 994 | 1,417 | | |
| **October** | 1,277 | 1,055 | 1,154 | 2,048 | | |
| **November** | 1,262 | 1,245 | 1,133 | 1,713 | | |
| **December** | 1,160 | 1,670 | 1,708 | 1,936 | | |
| **Annual Total** | 18,295 | 16,447 | 16,677 | 19,823 | 9,430 | |
| **Year to Date Trend** | **18,295** | **16,447** | **16,677** | **19,823** | **9,430** | **2,101** |

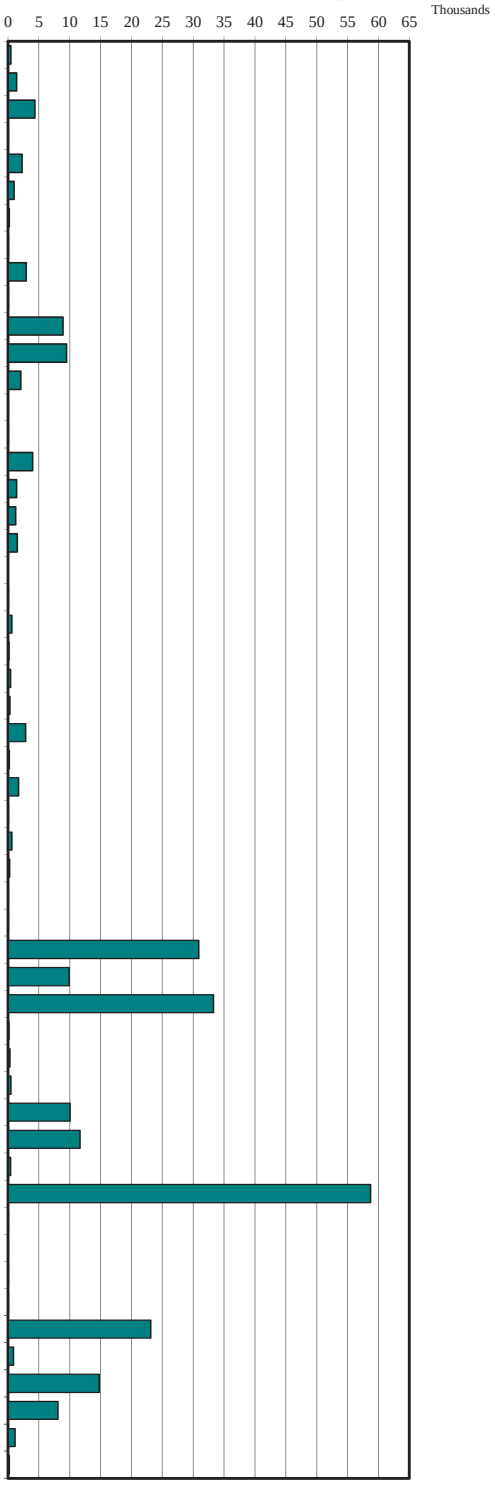
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



**Monthly Calls by Community**

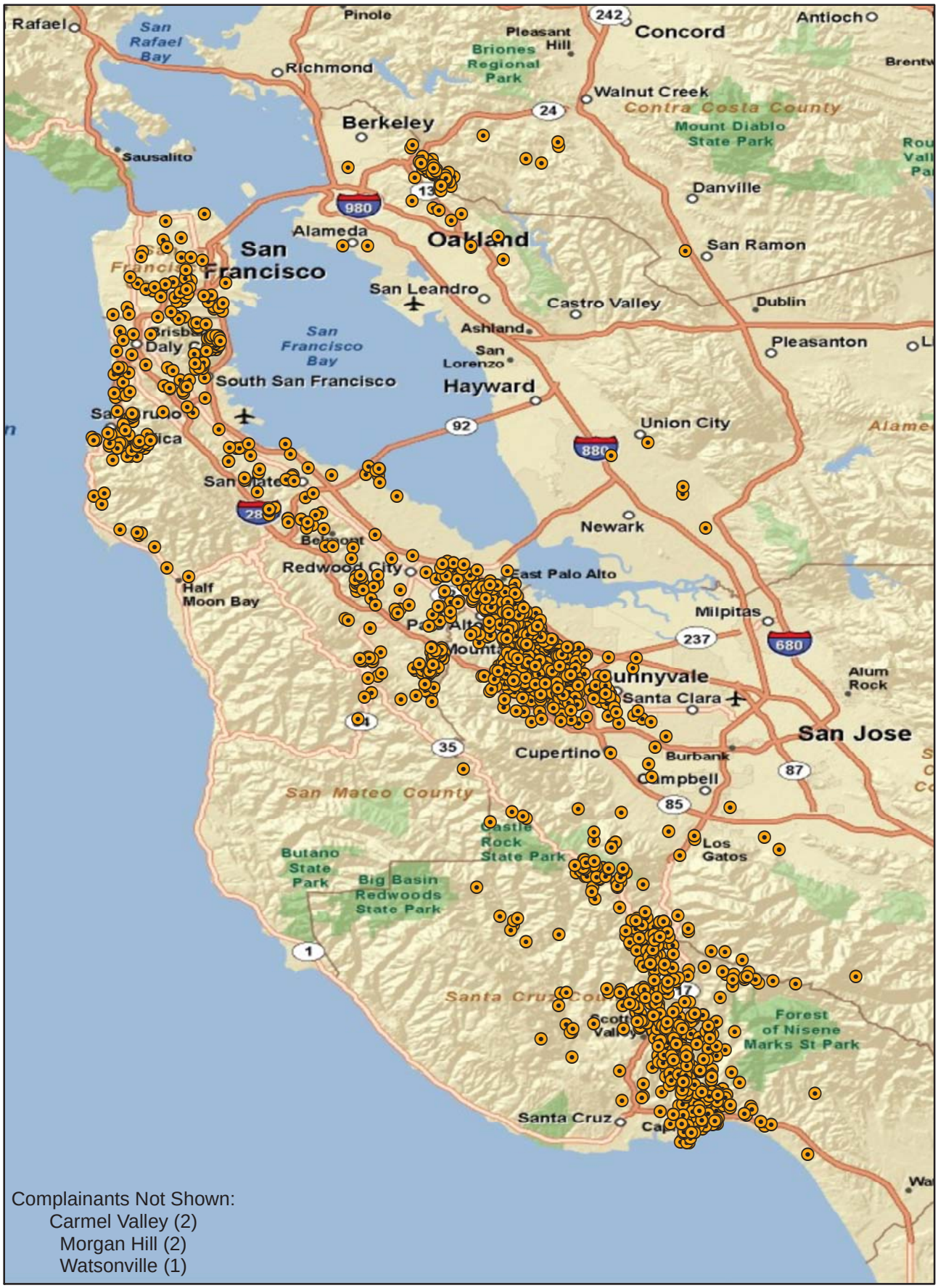
*Source: Airport Noise Monitoring System*

| Community | Total Complaints | Total Number of Complainants |
|---|---|---|
| Roundtable Communities | | |
| Atherton | 463 | 11 |
| Belmont | 1,419 | 5 |
| Brisbane | 4,368 | 51 |
| Burlingame | 66 | 11 |
| Daly City | 2,272 | 14 |
| Foster City | 979 | 8 |
| Half Moon Bay | 186 | 11 |
| Hillsborough | 10 | 6 |
| Menlo Park | 2,946 | 44 |
| Millbrae | 2 | 1 |
| Pacifica | 8,900 | 64 |
| Portola Valley | 9,487 | 55 |
| Redwood City | 2,086 | 23 |
| San Bruno | 69 | 4 |
| San Carlos | 12 | 5 |
| San Francisco | 3,986 | 49 |
| San Mateo | 1,384 | 15 |
| South San Francisco | 1,268 | 24 |
| Woodside | 1,518 | 23 |
| | | |
| Alameda | 32 | 2 |
| Aptos | 628 | 12 |
| Ben Lomond | 141 | 3 |
| Berkeley | 410 | 2 |
| Boulder Creek | 295 | 8 |
| Capitola | 2,860 | 21 |
| Carmel Valley | 208 | 2 |
| Cupertino | 1,699 | 4 |
| East Palo Alto | 34 | 3 |
| Felton | 635 | 13 |
| Fremont | 265 | 4 |
| La Selva Beach | 40 | 1 |
| Lafayette | 64 | 2 |
| Los Altos | 30,881 | 241 |
| Los Altos Hills | 9,924 | 43 |
| Los Gatos | 33,275 | 163 |
| Monte Sereno | 142 | 1 |
| Moraga | 285 | 2 |
| Morgan Hill | 481 | 2 |
| Mountain View | 10,068 | 90 |
| Oakland | 11,648 | 48 |
| Orinda | 438 | 1 |
| Palo Alto | 58,725 | 288 |
| Piedmont | 1 | 1 |
| San Jose | 48 | 5 |
| San Ramon | 1 | 1 |
| Santa Clara | 19 | 1 |
| Santa Cruz | 23,092 | 139 |
| Saratoga | 883 | 11 |
| Scotts Valley | 14,795 | 95 |
| Soquel | 8,080 | 94 |
| Sunnyvale | 1,146 | 34 |
| Watsonville | 191 | 1 |
| | **252,855** | **1,762** |




*"Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified 'default city' values."*

# Monthly Noise Complainant Summary Map May 2017



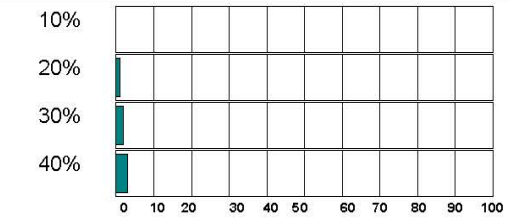

"Our software vendor's address validation relies on USPS-provided ZIP code look-up table and the USPS-specified 'default city' values"

Complainant Location

**Monthly Nighttime Power Runups Report (85-06-AOB)**
San Francisco International Airport -- Director's Report
Period : **May 2017**
Time of Day : From 10 pm through 7 am

| Airline | Code | Number of Runups | Runups Per 1,000 Departures |
|---|---|---|---|
| Southwest | SWA | 1 | 0.7 |
| Virgin America | VRD | 2 | 1.1 |
| American Airlines | AAL | 3 | 2.7 |
| United | UAL | 4 | 0.7 |
| **Total** | | **10** | |

Percentage of Runups




***A power runup is a procedure used to test an aircraft engine after maintenance is completed.***
***This is done to ensure safe operating standards prior to returning the aircraft to service.***
***The power settings tested range from idle to full power and may vary in duration.***

**Late Night Preferential Runway Use Report**
San Francisco International Airport -- Director's Report
**Period: May 2017**
Time of Day: Late Night (1 am to 6 am)

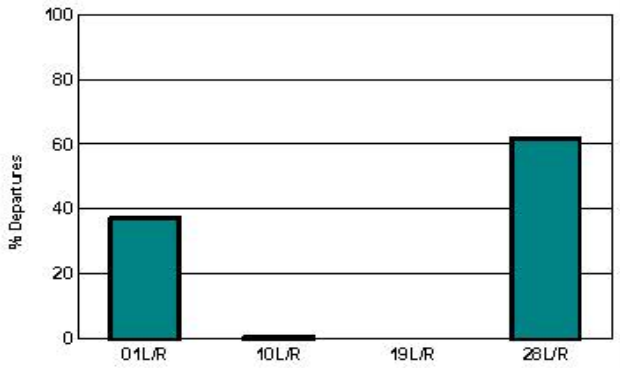
San Francisco International Airport

## Runway Utilization (1 am to 6 am)

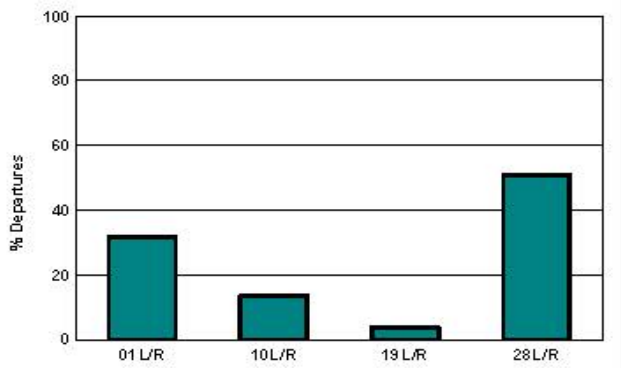
**Monthly Jet Departures**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | YTD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01L/R | 79 | 53 | 134 | 197 | 188 | - | - | - | - | - | - | - | 651 |
| 10L/R | 85 | 88 | 57 | 44 | 4 | - | - | - | - | - | - | - | 278 |
| 19L/R | 36 | 36 | - | 4 | - | - | - | - | - | - | - | - | 76 |
| 28L/R | 204 | 88 | 192 | 250 | 311 | - | - | - | - | - | - | - | 1,045 |
| **Total** | **404** | **265** | **383** | **495** | **503** | - | - | - | - | - | - | - | **2,050** |
| | | | | | | | | | | | | | |
| 01L/R | 20% | 20% | 35% | 40% | 37% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 32% |
| 10L/R | 21% | 33% | 15% | 9% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 14% |
| 19L/R | 9% | 14% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 4% |
| 28L/R | 50% | 33% | 50% | 51% | 62% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 51% |

### Current Month (1 am to 6 am)




### Year-to-Date (1am to 6 am)




### Current Month (1 am to 6 am)


*Numbers rounded to nearest whole percentages*

### Year-to-Date (1 am to 6am)


*Numbers rounded to nearest whole percentages*

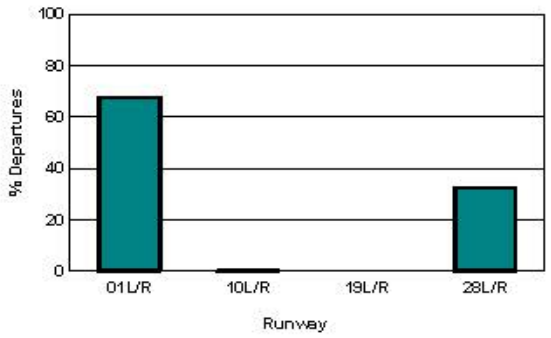
**Air Carrier Runway Use Summary Report**
San Francisco International Airport -- Director's Report
**Period:** May 2017
Time of Day : All Hours

## Runway Utilization (All Hours)

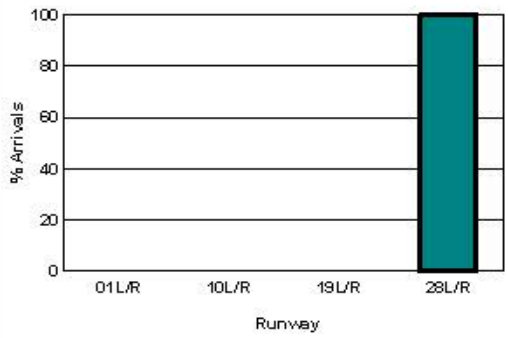
*Source: Airport Noise Monitoring System*

| | Runway Utilization | | | | Total |
|---|---|---|---|---|---|
| | *01L/R* | *10L/R* | *19L/R* | *28L/R* | |
| **Total Monthly Operations** | | | | | |
| *Departures* | 12,031 | 3 | 0 | 5,788 | 17,822 |
| *Arrivals* | 0 | 0 | 0 | 17,988 | 17,988 |
| **Percentage Utilization** | | | | | |
| *Departures* | 67.5% | 0.0% | 0.0% | 32.5% | 100% |
| *Arrivals* | 0.0% | 0.0% | 0.0% | 100.0% | 100% |

## Departures (All Hours)




## Arrivals (All Hours)




## Percentage Departure Utilization


*Numbers rounded to nearest whole percentages*

## Percentage Arrival Utilization


*Numbers rounded to nearest whole percentages*


# Airport Director's Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting

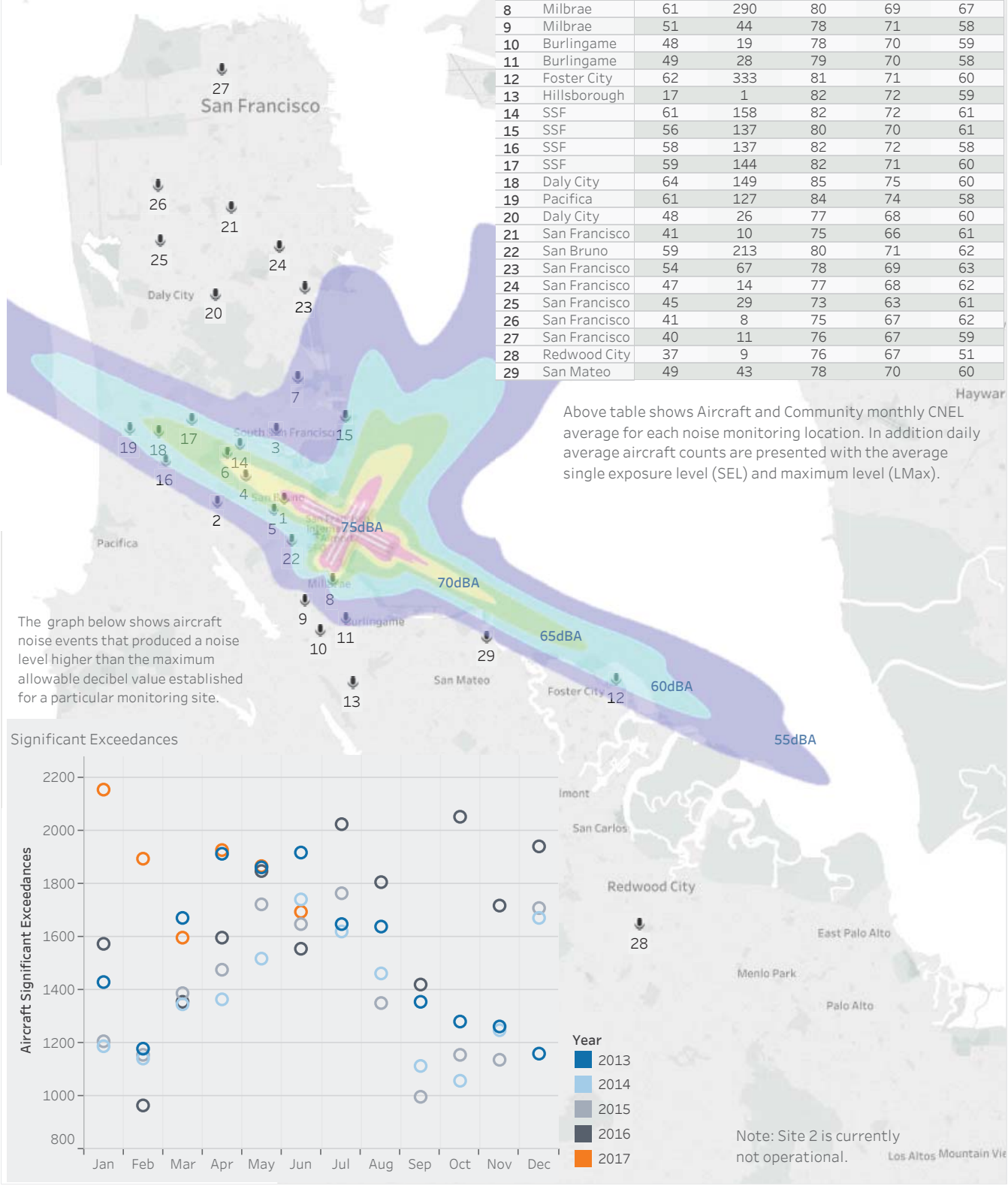
Aircraft Noise Abatement Office
June 2017

SFO San Francisco International Airport

# Aircraft Noise Monitoring System

June 2017

The map shows 29 aircraft noise monitoring locations that keep track of noise levels in the communities around the airport. Image centered on SFO airport shows quartlerly aircraft noise levels (dBA) exposure. The green zone marks 65dBA Community Noise Exposure Level (CNEL). The CNEL metric is used to assess and regulate aircraft noise exposure in communities surrounding the airport.




| Site | City | Aircraft CNEL (dBA) | Aircraft Noise Events Daily AVG | SEL (dBA) | LMax (dBA) | City CNEL (dBA) |
|---|---|---|---|---|---|---|
| 1 | San Bruno | 73 | 243 | 88 | 79 | 68 |
| 3 | SSF | 54 | 110 | 79 | 69 | 61 |
| 4 | SSF | 69 | 174 | 87 | 78 | 60 |
| 5 | San Bruno | 65 | 207 | 85 | 76 | 62 |
| 6 | SSF | 47 | 162 | 86 | 76 | 59 |
| 7 | Brisbane | 49 | 36 | 80 | 70 | 60 |
| 8 | Milbrae | 61 | 290 | 80 | 69 | 67 |
| 9 | Milbrae | 51 | 44 | 78 | 71 | 58 |
| 10 | Burlingame | 48 | 19 | 78 | 70 | 59 |
| 11 | Burlingame | 49 | 28 | 79 | 70 | 58 |
| 12 | Foster City | 62 | 333 | 81 | 71 | 60 |
| 13 | Hillsborough | 17 | 1 | 82 | 72 | 59 |
| 14 | SSF | 61 | 158 | 82 | 72 | 61 |
| 15 | SSF | 56 | 137 | 80 | 70 | 61 |
| 16 | SSF | 58 | 137 | 82 | 72 | 58 |
| 17 | SSF | 59 | 144 | 82 | 71 | 60 |
| 18 | Daly City | 64 | 149 | 85 | 75 | 60 |
| 19 | Pacifica | 61 | 127 | 84 | 74 | 58 |
| 20 | Daly City | 48 | 26 | 77 | 68 | 60 |
| 21 | San Francisco | 41 | 10 | 75 | 66 | 61 |
| 22 | San Bruno | 59 | 213 | 80 | 71 | 62 |
| 23 | San Francisco | 54 | 67 | 78 | 69 | 63 |
| 24 | San Francisco | 47 | 14 | 77 | 68 | 62 |
| 25 | San Francisco | 45 | 29 | 73 | 63 | 61 |
| 26 | San Francisco | 41 | 8 | 75 | 67 | 62 |
| 27 | San Francisco | 40 | 11 | 76 | 67 | 59 |
| 28 | Redwood City | 37 | 9 | 76 | 67 | 51 |
| 29 | San Mateo | 49 | 43 | 78 | 70 | 60 |

Above table shows Aircraft and Community monthly CNEL average for each noise monitoring location. In addition daily average aircraft counts are presented with the average single exposure level (SEL) and maximum level (LMax).

The graph below shows aircraft noise events that produced a noise level higher than the maximum allowable decibel value established for a particular monitoring site.

Significant Exceedances




Note: Site 2 is currently not operational.

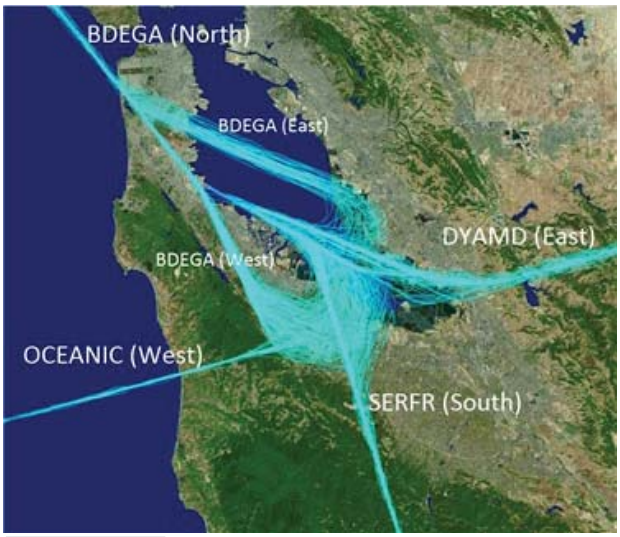
# Monthly Operations Summary

## June 2017

| 39,455 | 1,315 | 36,926 | 0.9% |
|---|---|---|---|
| Monthly Operations | Average Daily Operations | 12 Month AVG | YOY Growth |

### June 2017 Average Day (Hourly)


### Major Arrival Routes (West Flow)



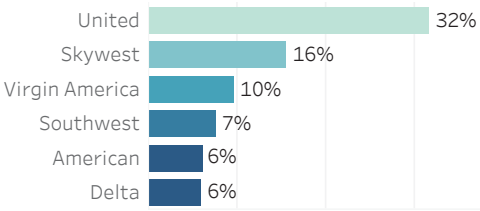

| | |
|---|---|
| BDEGA | 25% |
| DYAMD | 40% |
| OCEANIC | 6% |
| SERFR | 30% |

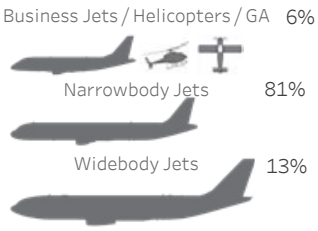
| | |
|---|---|
| BDEGA East | 27% |
| BDEGA West | 73% |

| Top Destinations | | | | |
|---|---|---|---|---|
| Los Ang.. | Seattle | Las Vegas | Chicago | San Diego |
| 8.9% | 4.3% | 3.6% | 3.4% | 3.4% |

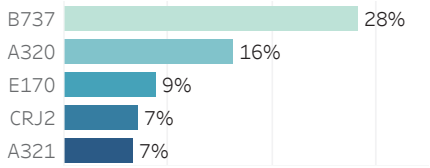
West Flow 100%

### Airlines with the Most Operations

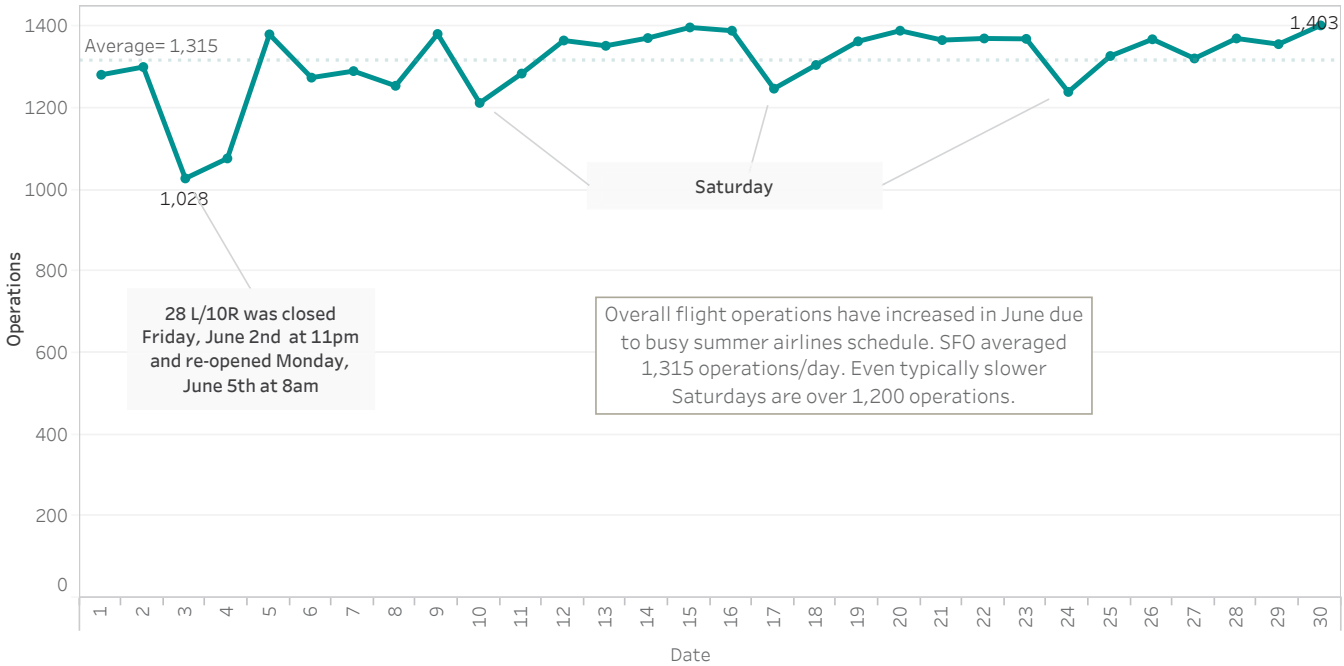



### Most Utilized Aircraft Types




### Daily Aircraft Operations




28 L/10R was closed Friday, June 2nd at 11pm and re-opened Monday, June 5th at 8am

Overall flight operations have increased in June due to busy summer airlines schedule. SFO averaged 1,315 operations/day. Even typically slower Saturdays are over 1,200 operations.

# Runway Usage and Nighttime Operations

Monthly runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airline nighttime power runup counts shown below.

### Runway Utilization (all hours)

| | Arrivals | Departures |
|---|---|---|
| 01 L/R | | 81% 15,083 |
| 10 L/R | | 0% 1 |
| 28 L/R | 100% 18,736 | 19% 3,576 |

### Late Night Preferential Runway Use (1 am - 6 am)

| | Departures |
|---|---|
| 10 L/R | 0% 1 |
| 01 L/R | 51% 311 |
| 28 L/R | 49% 302 |

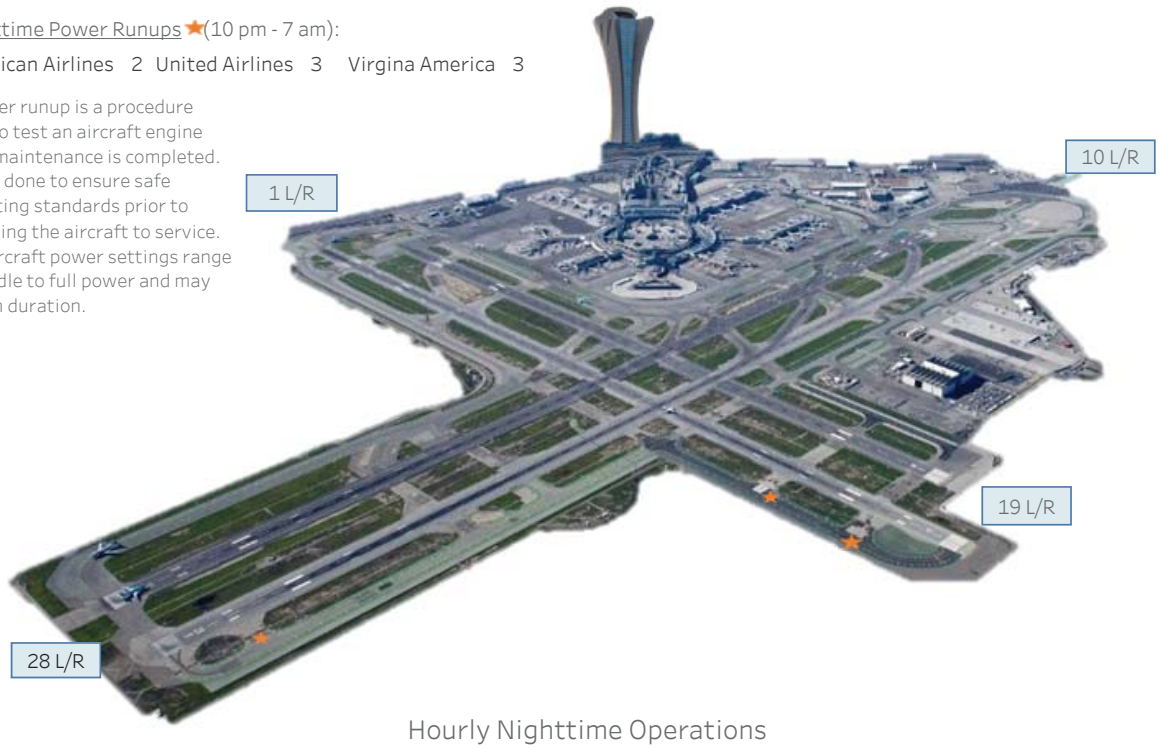
### 28 L vs R

| Arrivals | |
|---|---|
| 28L | 28R |
| 42% | 58% |
| Night (10 pm - 7 am) | |
| 18% | 82% |

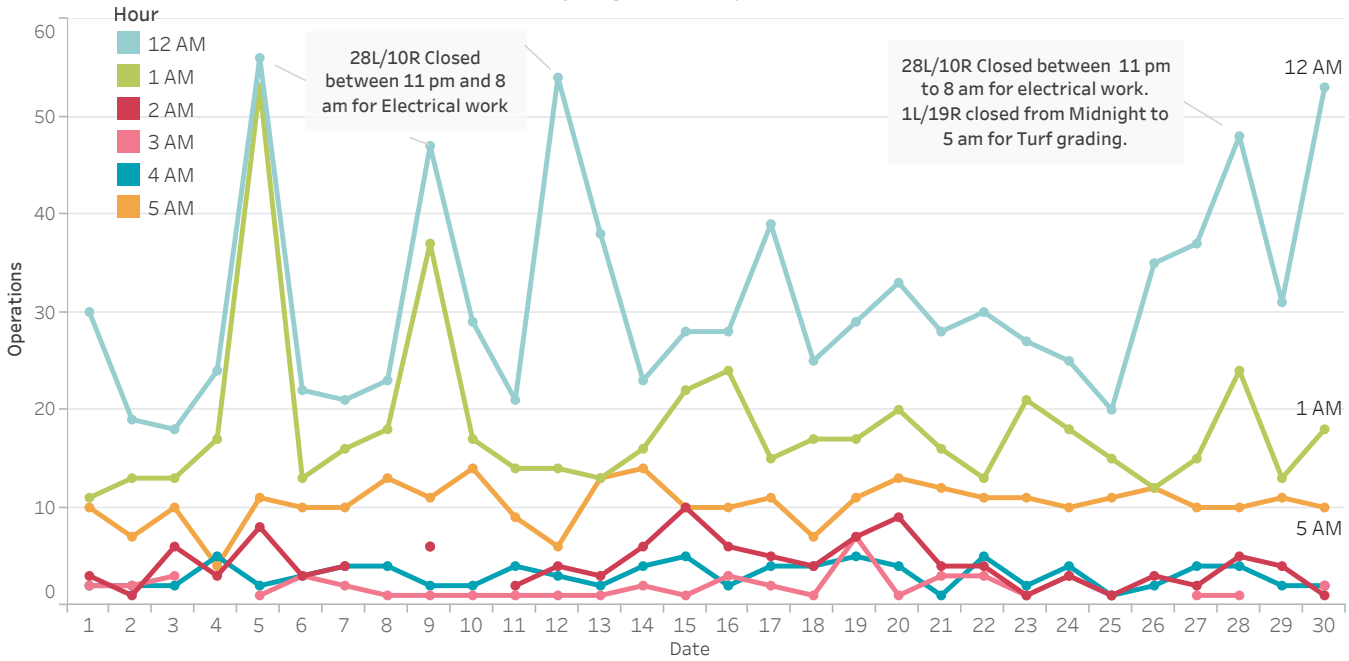
Nighttime Power Runups ★(10 pm - 7 am):

American Airlines 2 United Airlines 3 Virgina America 3

A power runup is a procedure used to test an aircraft engine after maintenance is completed. This is done to ensure safe operating standards prior to returning the aircraft to service. The aircraft power settings range from idle to full power and may vary in duration.




## Hourly Nighttime Operations



# Noise Reports

June 2017

| | | Noise Reporters | Noise Reports |
|---|---|---|---|
| Roundtable Communities | Atherton | 11 | 575 |
| | Belmont | 5 | 1,130 |
| | Brisbane | 41 | 4,045 |
| | Burlingame | 8 | 165 |
| | Daly City | 11 | 1,342 |
| | Foster City | 13 | 826 |
| | Half Moon Bay | 7 | 390 |
| | Hillsborough | 4 | 52 |
| | Menlo Park | 36 | 1,708 |
| | Millbrae | 3 | 6 |
| | Pacifica | 75 | 6,729 |
| | Portola Valley | 54 | 6,603 |
| | Redwood City | 15 | 1,690 |
| | San Bruno | 3 | 268 |
| | San Carlos | 2 | 2 |
| | San Francisco | 48 | 4,108 |
| | San Mateo | 15 | 1,468 |
| | South San Francisco | 14 | 831 |
| | Woodside | 26 | 1,665 |
| Other Communities | Alameda | 3 | 47 |
| | Aptos | 10 | 663 |
| | Ben Lomond | 4 | 131 |
| | Berkeley | 3 | 53 |
| | Boulder Creek | 7 | 292 |
| | Capitola | 17 | 2,986 |
| | Carmel | 2 | 228 |
| | Cupertino | 3 | 816 |
| | Danville | 1 | 4 |
| | East Palo Alto | 2 | 107 |
| | El Cerrito | 1 | 1 |
| | Felton | 11 | 615 |
| | Fremont | 2 | 63 |
| | Los Altos | 234 | 29,576 |
| | Los Altos Hills | 36 | 9,507 |
| | Los Gatos | 158 | 26,198 |
| | Montara | 2 | 7 |
| | Moraga | 2 | 294 |
| | Morgan Hill | 2 | 637 |
| | Mountain View | 71 | 4,685 |
| | Novato | 1 | 1 |
| | Oakland | 49 | 11,742 |
| | Orinda | 1 | 470 |
| | Palo Alto | 295 | 58,566 |
| | Point Richmond | 1 | 1 |
| | San Jose | 1 | 26 |
| | Santa Cruz | 144 | 21,162 |
| | Saratoga | 15 | 1,212 |
| | Scotts Valley | 92 | 15,145 |
| | Soquel | 89 | 7,478 |
| | Sunnyvale | 24 | 430 |
| | Watsonville | 1 | 160 |
| Total | | 1,675 | 226,906 |

1,940
Noise Reporters (12 month AVG)

265,145
Noise Reports (12 Month AVG)

80
New Reporters

Santa Cruz
New Reporters Top City

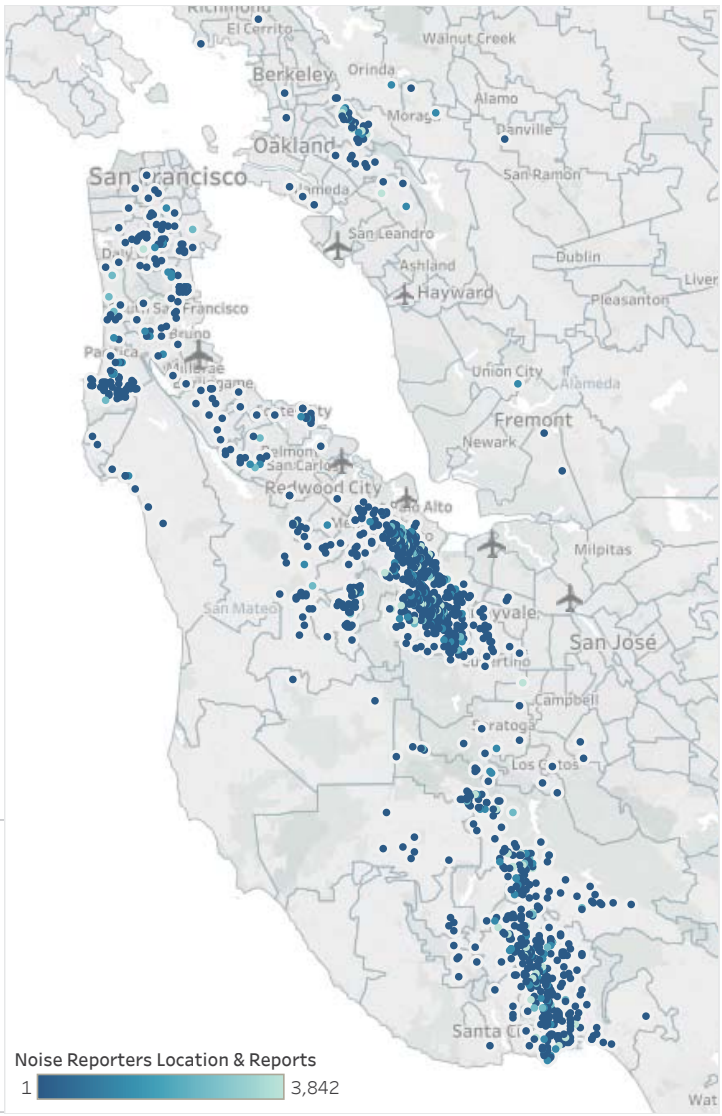
80 miles
Furthest Report

6
Reports per SFO Operation

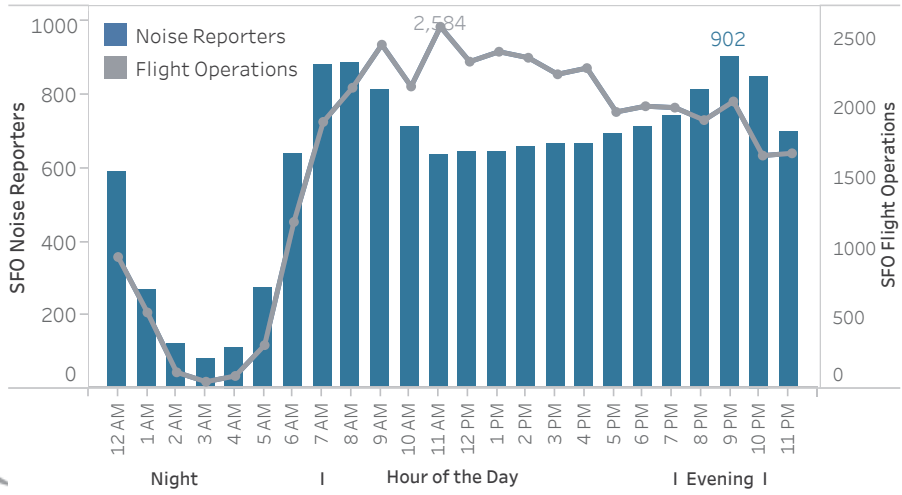
B737
A320
CRJ2
Top Aircraft Type

KAL213*
CMP382*
JBU736
Top Flight Number
*Night

## Noise Reporters Location Map




## Hourly Noise Reporters vs. Flight Operations




99% of noise reports correlate to a flight origin/destination airport:


Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified default city values.

Source: SFO Intl Airport Noise Monitoring System

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# Airport Director's Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
June 2017

SFO San Francisco International Airport

**Monthly Noise Exceedance Report**
San Francisco International Airport -- Director's Report
Period: **June 2017**

| Airline | | Noise Exceedances: Total Noise Exceedances | Total Operations per Month | Exceedances per 1,000 Operations | Score | Noise Exceedance Quality Rating |
|---|---|---|---|---|---|---|
| SkyWest | SKW | 39 | 5,998 | 7 | 9.97 | |
| virgin atlantic | VIR | 1 | 130 | 8 | 9.96 | |
| TURKISH AIRLINES | THY | 1 | 60 | 17 | 9.92 | |
| JAPAN AIRLINES | JAL | 1 | 59 | 17 | 9.91 | |
| DELTA | DAL | 42 | 2,302 | 18 | 9.91 | |
| Alaska | ASA | 18 | 986 | 18 | 9.91 | |
| AIRFRANCE | AFR | 3 | 162 | 19 | 9.91 | |
| KLM Royal Dutch Airlines | KLM | 2 | 86 | 23 | 9.88 | |
| virgin america | VRD | 88 | 3,702 | 24 | 9.88 | |
| Compass Airlines | CPZ | 21 | 835 | 25 | 9.87 | |
| AIR CANADA | ACA | 20 | 764 | 26 | 9.87 | |
| sun country airlines | SCX | 4 | 149 | 27 | 9.86 | |
| BRITISH AIRWAYS | BAW | 4 | 120 | 33 | 9.83 | |
| jetBlue | JBU | 37 | 1,035 | 36 | 9.82 | |
| Southwest | SWA | 108 | 2,896 | 37 | 9.81 | |
| ETIHAD | ETD | 1 | 26 | 38 | 9.81 | |
| UNITED | UAL | 474 | 12,229 | 39 | 9.80 | |
| American Airlines | AAL | 97 | 2,323 | 42 | 9.79 | |
| CHINA AIRLINES | CAL | 7 | 134 | 52 | 9.74 | |
| NCA Nippon Cargo Airlines | NCA | 3 | 52 | 58 | 9.71 | |
| WESTJET | WJA | 10 | 172 | 58 | 9.71 | |
| ASIANA AIRLINES | AAR | 5 | 74 | 68 | 9.66 | |
| XL airways | XLF | 1 | 14 | 71 | 9.64 | |
| FRONTIER AIRLINES | FFT | 29 | 374 | 78 | 9.61 | |
| CopaAirlines | CMP | 14 | 117 | 120 | 9.40 | |
| AIR INDIA | AIC | 7 | 52 | 135 | 9.32 | |
| Avianca | TAI | 12 | 87 | 138 | 9.30 | |
| FedEx | FDX | 14 | 90 | 156 | 9.21 | |
| 中国南方航空 | CSN | 13 | 66 | 197 | 9.00 | |
| HAWAIIAN AIRLINES | HAL | 27 | 120 | 225 | 8.86 | |
| SINGAPORE AIRLINES | SIA | 27 | 120 | 225 | 8.86 | |
| AEROMEXICO. | AMX | 53 | 207 | 256 | 8.71 | |
| FIJI AIRWAYS | FJI | 8 | 22 | 364 | 8.16 | |
| CATHAY PACIFIC | CPA | 56 | 146 | 384 | 8.06 | |
| EVA AIR | EVA | 50 | 128 | 391 | 8.03 | |
| WOW | WOW | 24 | 60 | 400 | 7.98 | |
| KOREAN AIR | KAL | 81 | 163 | 497 | 7.49 | |
| AIR NEW ZEALAND | ANZ | 32 | 60 | 533 | 7.31 | |
| ATLAS AIR | GTI | 66 | 117 | 564 | 7.15 | |
| Philippines | PAL | 62 | 85 | 729 | 6.32 | |
| SKALITTAE AIR | CKS | 33 | 26 | 1,269 | 3.59 | |
| QANTAS | QFA | 97 | 49 | 1,980 | 0.00 | |
| **TOTAL** | | **1,692** | **36,397** | **9,399** | | |

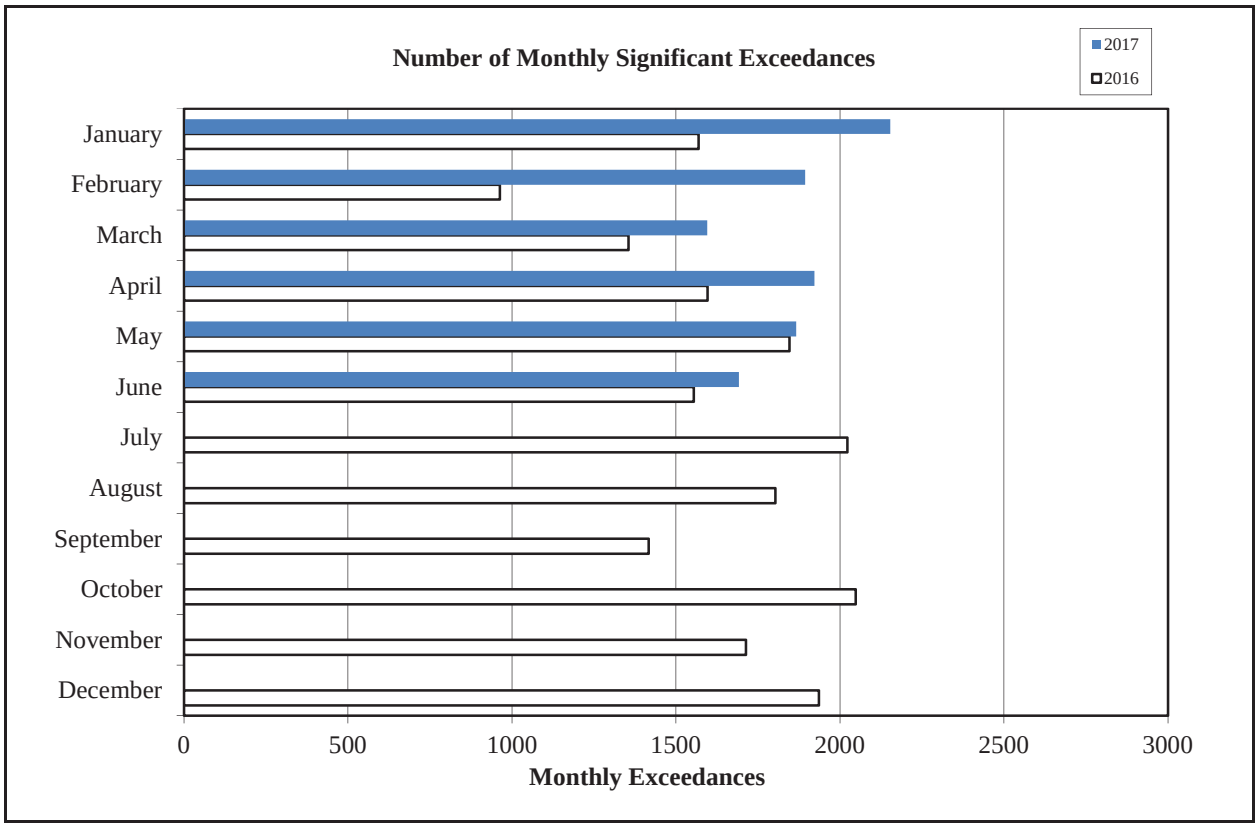

*Source: SFO Noise Abatement Office*

**Historical Significant Exceedances Report**
San Francisco International Airport -- Director's Report
Period: **June 2017**

San Francisco International Airport

| Month | Number of Monthly Significant Exceedances 2013 | 2014 | 2015 | 2016 | 2017 | Change from Last Year |
|---|---|---|---|---|---|---|
| **January** | 1,428 | 1,184 | 1,204 | 1,569 | 2,153 | **584** |
| **February** | 1,176 | 1,141 | 1,151 | 963 | 1,894 | **931** |
| **March** | 1,671 | 1,345 | 1,384 | 1,355 | 1,595 | **240** |
| **April** | 1,910* | 1,362 | 1,475 | 1,596 | 1,922 | **326** |
| **May** | 1,859* | 1,515 | 1,718 | 1,846 | 1,866 | **20** |
| **June** | 1,915 | 1,740 | 1,645 | 1,554 | 1,692 | **138** |
| **July** | 1,647 | 1,619 | 1,763*** | 2,023 | | |
| **August** | 1,638** | 1,460 | 1,348 | 1,803 | | |
| **September** | 1,352 | 1,111 | 994 | 1,417 | | |
| **October** | 1,277 | 1,055 | 1,154 | 2,048 | | |
| **November** | 1,262 | 1,245 | 1,133 | 1,713 | | |
| **December** | 1,160 | 1,670 | 1,708 | 1,936 | | |
| **Annual Total** | 18,295 | 16,447 | 16,677 | 19,823 | 11,122 | |
| **Year to Date Trend** | **18,295** | **16,447** | **16,677** | **19,823** | **11,122** | **2,239** |

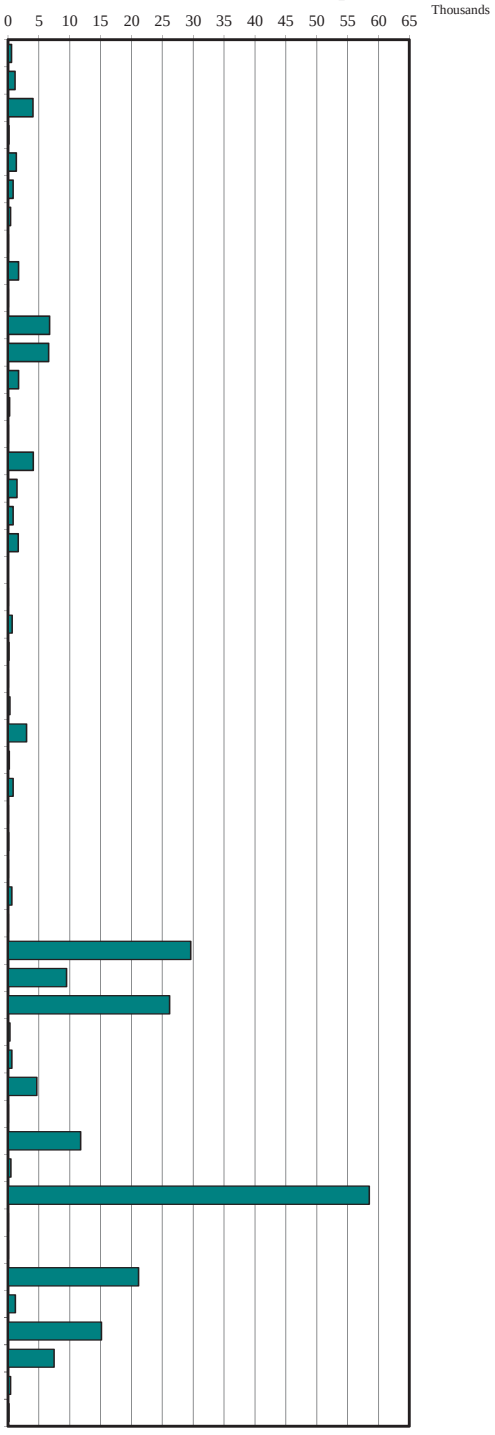
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



**Monthly Calls by Community**

*Source: Airport Noise Monitoring System*

| Community | Total Complaints | Total Number of Complainants |
|---|---|---|
| Roundtable Communities | | |
| Atherton | 575 | 11 |
| Belmont | 1,130 | 5 |
| Brisbane | 4,045 | 41 |
| Burlingame | 165 | 8 |
| Daly City | 1,342 | 11 |
| Foster City | 826 | 13 |
| Half Moon Bay | 397 | 9 |
| Hillsborough | 52 | 4 |
| Menlo Park | 1,708 | 36 |
| Millbrae | 6 | 3 |
| Pacifica | 6,729 | 75 |
| Portola Valley | 6,603 | 54 |
| Redwood City | 1,690 | 15 |
| San Bruno | 268 | 3 |
| San Carlos | 2 | 2 |
| San Francisco | 4,108 | 48 |
| San Mateo | 1,470 | 15 |
| South San Francisco | 831 | 14 |
| Woodside | 1,665 | 26 |
| Other Communities | | |
| Alameda | 47 | 3 |
| Aptos | 663 | 10 |
| Ben Lomond | 131 | 4 |
| Berkeley | 53 | 3 |
| Boulder Creek | 292 | 7 |
| Capitola | 2,986 | 17 |
| Carmel Valley | 228 | 2 |
| Cupertino | 816 | 3 |
| Danville | 4 | 1 |
| East Palo Alto | 107 | 2 |
| El Cerrito | 1 | 1 |
| Felton | 615 | 11 |
| Fremont | 63 | 2 |
| Los Altos | 29,576 | 235 |
| Los Altos Hills | 9,507 | 36 |
| Los Gatos | 26,198 | 158 |
| Moraga | 294 | 2 |
| Morgan Hill | 637 | 2 |
| Mountain View | 4,686 | 71 |
| Novato | 1 | 1 |
| Oakland | 11,742 | 49 |
| Orinda | 470 | 1 |
| Palo Alto | 58,507 | 295 |
| Point Richmond | 1 | 1 |
| San Jose | 26 | 1 |
| Santa Cruz | 21,162 | 144 |
| Saratoga | 1,212 | 15 |
| Scotts Valley | 15,145 | 92 |
| Soquel | 7,478 | 89 |
| Sunnyvale | 430 | 24 |
| Watsonville | 160 | 1 |
| | **226,850** | **1,676** |




*"Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified 'default city' values."*

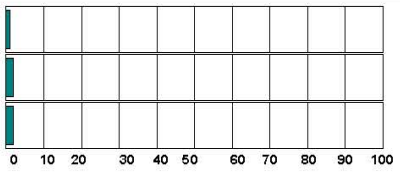
# Monthly Noise Complainant Summary Map June 2017


"Our software vendor's address validation relies on USPS-provided ZIP code look-up table and the USPS-specified 'default city' values"

Complainant Location

**Monthly Nighttime Power Runups Report (85-06-AOB)**
San Francisco International Airport -- Director's Report
Period : **June 2017**
Time of Day : From 10 pm through 7 am

| Airline | Code | Number of Runups | Runups Per 1,000 Departures | Percentage of Runups |
|---|---|---|---|---|
| American Airlines | AAL | 2 | 1.7 | 25% |
| UNITED | UAL | 3 | 0.5 | 38% |
| Virgin america | VRD | 3 | 1.6 | 38% |
| Total | | 8 | | |




***A power runup is a procedure used to test an aircraft engine after maintenance is completed.***
***This is done to ensure safe operating standards prior to returning the aircraft to service.***
***The power settings tested range from idle to full power and may vary in duration.***

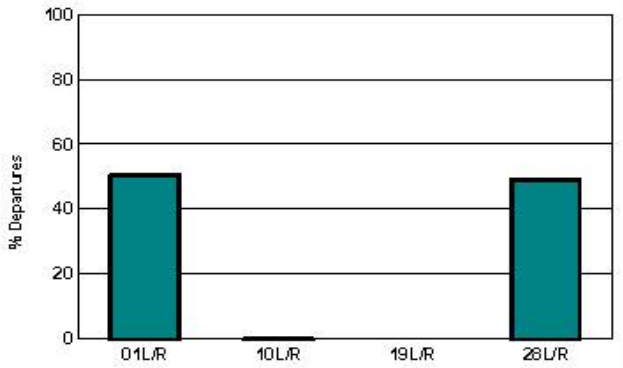
**Late Night Preferential Runway Use Report**
San Francisco International Airport -- Director's Report
**Period: June 2017**
Time of Day: Late Night (1 am to 6 am)

## Runway Utilization (1 am to 6 am)

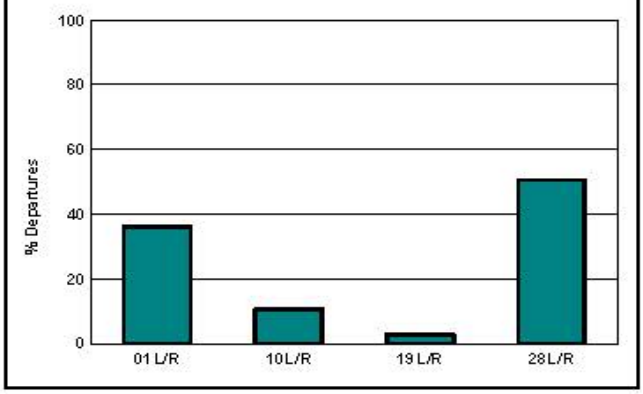
**Monthly Jet Departures**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | YTD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01L/R | 79 | 53 | 134 | 197 | 188 | 311 | - | - | - | - | - | - | 962 |
| 10L/R | 85 | 88 | 57 | 44 | 4 | 1 | - | - | - | - | - | - | 279 |
| 19L/R | 36 | 36 | - | 4 | - | - | - | - | - | - | - | - | 76 |
| 28L/R | 204 | 88 | 192 | 250 | 311 | 302 | - | - | - | - | - | - | 1,347 |
| **Total** | **404** | **265** | **383** | **495** | **503** | **614** | - | - | - | - | - | - | **2,664** |
| | | | | | | | | | | | | | |
| 01L/R | 20% | 20% | 35% | 40% | 37% | 51% | 0% | 0% | 0% | 0% | 0% | 0% | 36% |
| 10L/R | 21% | 33% | 15% | 9% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 10% |
| 19L/R | 9% | 14% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 3% |
| 28L/R | 50% | 33% | 50% | 51% | 62% | 49% | 0% | 0% | 0% | 0% | 0% | 0% | 51% |

## Current Month (1 am to 6 am)




## Year-to-Date (1am to 6 am)




## Current Month (1 am to 6 am)


*Numbers rounded to nearest whole percentages*

## Year-to-Date (1 am to 6am)


*Numbers rounded to nearest whole percentages*

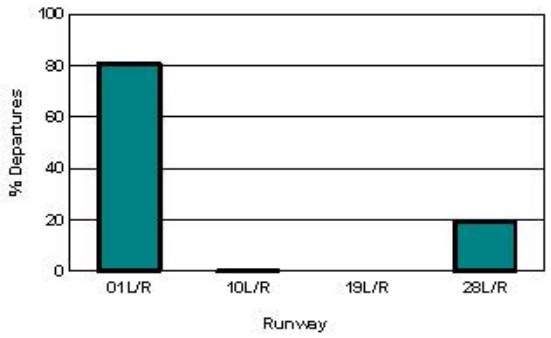
**Air Carrier Runway Use Summary Report**
San Francisco International Airport -- Director's Report
**Period:** June 2017
Time of Day : All Hours

## Runway Utilization (All Hours)

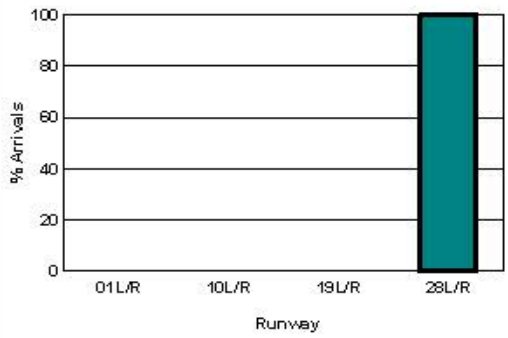
*Source: Airport Noise Monitoring System*

| | Runway Utilization | | | | Total |
|---|---|---|---|---|---|
| | *01L/R* | *10L/R* | *19L/R* | *28L/R* | |
| **Total Monthly Operations** | | | | | |
| *Departures* | 15,083 | 1 | 0 | 3,576 | 18,660 |
| *Arrivals* | 0 | 0 | 0 | 18,736 | 18,736 |
| **Percentage Utilization** | | | | | |
| *Departures* | 80.8% | 0.0% | 0.0% | 19.2% | 100% |
| *Arrivals* | 0.0% | 0.0% | 0.0% | 100.0% | 100% |

## Departures (All Hours)




## Arrivals (All Hours)




## Percentage Departure Utilization


*Numbers rounded to nearest whole percentages*

## Percentage Arrival Utilization


*Numbers rounded to nearest whole percentages*

# Fly Quiet Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
Second Quarter 2017

SFO San Francisco International Airport

San Francisco International Airport

# Fly Quiet Program

San Francisco International Airport's Fly Quiet Program is an Airport Community Roundtable initiative implemented by the Aircraft Noise Abatement Office. Its purpose is to encourage individual airlines to operate as quietly as possible at SFO. The program promotes a participatory approach in complying with noise abatement procedures and objectives by grading an airline's performance and by making the scores available to the public via newsletters, publications, and public meetings.

Fly Quiet offers a dynamic venue for implementing new noise abatement initiatives by praising and publicizing active participation rather than a system that admonishes violations from essentially voluntary procedures.

## Program Goals

The overall goal of the Fly Quiet Program is to influence airlines to operate as quietly as possible in the San Francisco Bay Area. A successful Fly Quiet Program can be expected to reduce both single event and total noise levels around the airport.

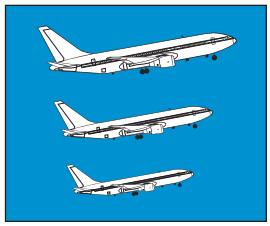
## Program Reports

Fly Quiet reports communicate results in a clear, understandable format on a scale of 0-10, zero being poor and ten being good. This allows for an easy comparison between airlines over time. Individual airline scores are computed and reports are generated each quarter. These quantitative scores allow airline management and flight personnel to measure exactly how they stand compared to other operators and how their proactive involvement can positively reduce noise in the Bay Area.

## Program Elements

Currently the Fly Quiet Program rates jets and regional jets on six elements : the overall noise quality of each airline's fleet operating at SFO, an evaluation of single overflight noise level exceedences, a measure of how well each airline complies with the preferred nighttime noise abatement runways, assessment of airline performance to the Gap and Shoreline Departures, and over the bay approaches to runways 28L and 28R.

# SFO's Fly Quiet Ratings



## Fleet Noise Quality

The Fly Quiet Program Fleet Noise Quality Rating evaluates the noise contribution of each airline's fleet as it actually operates at SFO. Airlines generally own a variety of aircraft types and schedule them according to both operational and marketing considerations. Fly Quiet assigns a higher rating or grade to airlines operating quieter, new generation aircraft, while airlines operating older, louder technology aircraft would rate lower. The goal of this measurement is to fairly compare airlines—not just by the fleet they own, but by the frequency that they schedule and fly particular aircraft into SFO.

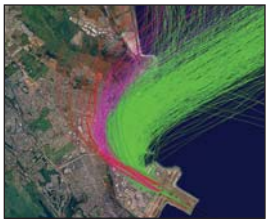
## Noise Exceedance

Eliminating high-level noise events is a long-standing goal of the Airport and the Airport Community Roundtable. As a result the Airport has established single event maximum noise level limits at each noise-monitoring site. These thresholds were set to identify aircraft producing noise levels higher than are typical for the majority of the operations.

Whenever an aircraft overflight produces a noise level higher than the maximum decibel value established for a particular monitoring site, the noise threshold is surpassed and a noise exceedance occurs. An exceedance may take place during approach, takeoff, or possibly during departure ground roll before lifting off. Noise exceedances are logged by the exact operation along with the aircraft type and airline name.


## Nighttime Preferential Runway Use

SFO's Nighttime Preferential Runway Use program was developed in 1988. Although the program cannot be used 100% of the time because of winds, weather, and other operational factors, the Airport, the Community Roundtable, the FAA, and the Airlines have all worked together to maximize its use when conditions permit. The program is voluntary; compliance is at the discretion of the pilot in command. The main focus of this program is to maximize flights over water and minimize flights over land and populated areas between 1:00 a.m. and 6:00 a.m. Fortunately, because airport activity levels are lower late at night, it is feasible to use over-water departure procedures more frequently than would be possible during the day. Reducing nighttime noise—especially sleep disturbance— is a key goal of SFO's aircraft noise abatement program.



## Shoreline Departure Quality

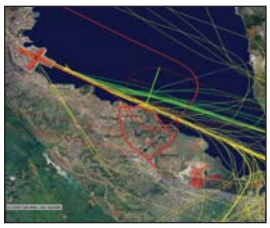
Aircraft departing SFO using Runways 28L and 28R are also considered by the Fly Quiet grading system whenever they use the Shoreline Departure Procedure. This predominately VFR (visual flight rules) departure steers aircraft to the northeast shortly after takeoff in an attempt to keep aircraft and aircraft noise away from the residential communities located to the northwest of SFO. By keeping aircraft east of Highway 101 the majority of the overflights will be experienced by industrial and business parks instead of residential areas.

In order to evaluate each airline's performance when flying a Shoreline Departure, a corridor was established using Interstate 101 (green colored flight tracks) as a reference point. The corridor runs north along 101, beginning approximately one-mile north-northwest of the end of Runways 28L and 28R and continuing up into the City of Brisbane. Departures west of 101 are scored marginal or poor depending on their location.

## Gap Departure Quality

Aircraft departing SFO using Runways 28L and 28R frequently depart straight out using a procedure known as the Gap Departure. This procedure directs air traffic to fly a route that takes them over the area northwest of the airport over the cities of South San Francisco, San Bruno, Daly City, and Pacifica. In an attempt to mitigate noise in this specific area, the Gap Departure Quality Rating has been included as a category in the Fly Quiet Program.

Since "higher is quieter", aircraft altitudes are recorded along the departure route. Scores are assigned at specified points or gates set approximately one mile apart, with the higher aircraft receiving higher scores.



## Foster City Arrival Quality

The Arrival Quality Rating is the latest addition to the Fly Quiet Program. In an effort to further reduce nighttime noise in neighboring communities, this rating is designed to maximize over-bay approaches to Runways 28 between 11:00 p.m. and 6:00 a.m. Airlines arriving to Runways 28 during these hours are assessed based on which approach flight path was used. Over-the-bay approaches are rated good (green colored flight tracks), versus over-the-communities which are rated poor.

*Revised date: 5/15/09*

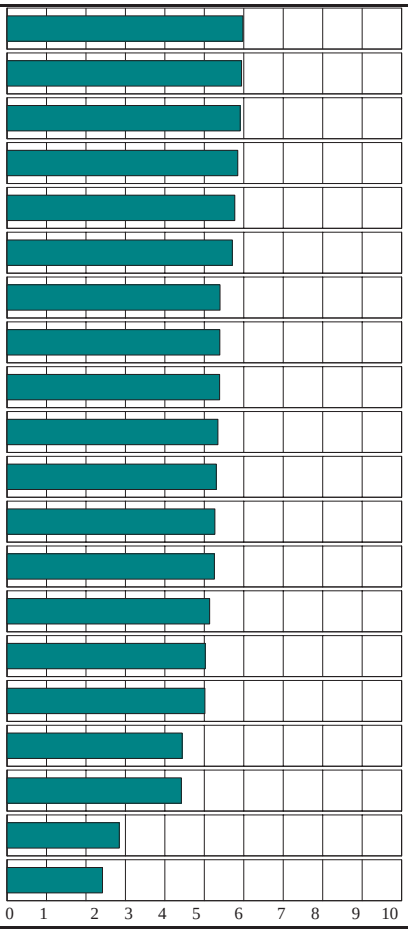
| Airline | | Fleet Noise Quality | Noise Exceedance | Nighttime Runway Use | Departures: Shoreline | Departures: Gap | Arrivals: Foster City | Final Score | Airline Fly Quiet Rating |
|---|---|---|---|---|---|---|---|---|---|
| AIR CHINA | CCA | 9.85 | 10.00 | - | - | 8.06 | - | 9.30 | |
| virgin atlantic | VIR | 7.97 | 9.99 | - | 10.00 | 8.18 | - | 9.03 | |
| Emirates | UAE | 9.93 | 9.98 | - | - | 4.86 | - | 8.25 | |
| AIRFRANCE | AFR | 8.41 | 10.00 | - | - | 6.26 | - | 8.22 | |
| ANA | ANA | 7.15 | 10.00 | - | - | 7.36 | - | 8.17 | |
| Scandinavian Airlines | SAS | 8.13 | 10.00 | - | - | 5.96 | - | 8.03 | |
| volaris | VOI | 4.86 | 9.96 | - | - | 9.00 | - | 7.94 | |
| XL airways | XLF | 4.05 | 9.68 | - | - | 10.00 | - | 7.91 | |
| JAPAN AIRLINES | JAL | 7.13 | 9.98 | - | - | 6.40 | - | 7.83 | |
| Lufthansa | DLH | 9.08 | 10.00 | - | 5.00 | 7.23 | - | 7.83 | |
| FINNAIR | FIN | 4.05 | 10.00 | - | 10.00 | 6.35 | - | 7.60 | |
| ICELANDAIR | ICE | 7.72 | 10.00 | - | - | 5.00 | - | 7.57 | |
| Horizon Air | QXE | 10.00 | 10.00 | - | 5.00 | 4.22 | - | 7.30 | |
| SWISS | SWR | 7.28 | 10.00 | - | - | 4.62 | - | 7.30 | |
| Compass Airlines | CPZ | 10.00 | 9.91 | 3.16 | 8.33 | 6.62 | 5.38 | 7.23 | |
| 中國東方航空 CHINA EASTERN | CES | 6.23 | 10.00 | - | - | 5.17 | - | 7.13 | |
| SkyWest | SKW | 10.00 | 9.97 | 3.40 | 7.43 | 6.57 | 5.06 | 7.07 | |
| WESTJET | WJA | 5.82 | 9.73 | - | 9.76 | 5.00 | 5.00 | 7.06 | |
| BRITISH AIRWAYS | BAW | 6.73 | 9.87 | - | - | 4.51 | - | 7.04 | |
| CargoLogicAir | CLU | 3.43 | 9.36 | - | - | 8.25 | - | 7.01 | |
| DELTA | DAL | 6.49 | 9.86 | 4.04 | 7.17 | 6.87 | 7.10 | 6.92 | |
| Southwest | SWA | 5.81 | 9.83 | 3.50 | 9.35 | 6.32 | 6.61 | 6.91 | |
| Thomas Cook Airlines | TCX | 4.05 | 10.00 | - | 7.50 | 6.00 | - | 6.89 | |
| suncountry.airlines | SCX | 5.82 | 9.92 | 3.33 | 9.83 | 4.50 | 6.67 | 6.68 | |
| Alaska | ASA | 5.18 | 9.90 | 3.56 | 9.57 | 6.79 | 5.00 | 6.67 | |
| jetBlue | JBU | 4.78 | 9.84 | 4.38 | 7.93 | 5.64 | 7.37 | 6.66 | |
| AIR CANADA | ACA | 5.79 | 9.85 | 3.33 | 8.45 | 4.70 | 7.36 | 6.58 | |
| FRONTIER AIRLINES | FFT | 5.18 | 9.71 | 4.33 | 9.25 | 4.17 | 6.70 | 6.56 | |
| TURKISH AIRLINES | THY | 7.15 | 9.98 | - | - | 2.49 | - | 6.54 | |
| Virgin america | VRD | 4.96 | 9.88 | 4.17 | 9.08 | 4.59 | 6.46 | 6.52 | |
| FedEx | FDX | 3.84 | 9.55 | - | 10.00 | 3.13 | 6.02 | 6.51 | |
| | | | | | | | | 6.44 | SFO AVERAGE |
| UNITED | UAL | 5.87 | 9.80 | 3.43 | 7.35 | 5.64 | 6.40 | 6.41 | |
| Avianca | TAI | 4.96 | 9.22 | 2.81 | 10.00 | 6.10 | 5.22 | 6.39 | |
| allegiant | AAY | 3.41 | 9.25 | - | - | - | - | 6.33 | |
| KLM Royal Dutch Airlines | KLM | 6.79 | 9.96 | - | 3.00 | 5.23 | - | 6.25 | |
| NCA Nippon Cargo Airlines | NCA | 9.74 | 9.56 | 0.00 | - | 6.62 | 5.00 | 6.18 | |
| AIR INDIA | AIC | 7.15 | 9.07 | - | 1.67 | 7.77 | 5.00 | 6.13 | |
| American Airlines | AAL | 4.92 | 9.79 | 4.11 | 7.98 | 2.22 | 7.20 | 6.04 | |

## Airline Fly Quiet Summary Report - 2nd Quarter 2017

April 1 to June 30, 2017

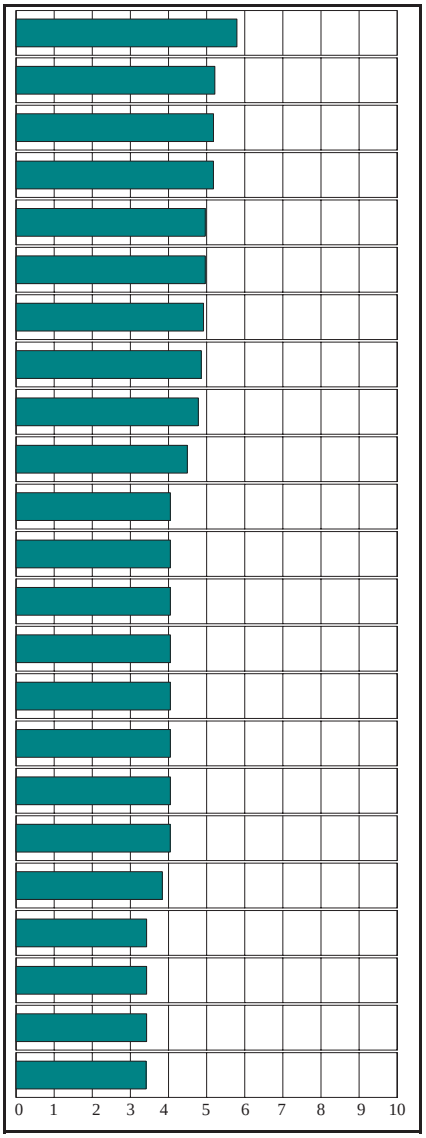
| Airline | | Fleet Noise Quality | Noise Exceedance | Nighttime Runway Use | Departures Shoreline | Departures Gap | Arrivals Foster City | Final Score |
|---|---|---|---|---|---|---|---|---|
| ASIANA AIRLINES | AAR | 5.22 | 9.18 | 1.67 | - | 8.83 | 5.00 | 5.98 |
| AEROMEXICO | AMX | 5.82 | 8.95 | 2.78 | - | 6.84 | 5.32 | 5.94 |
| Aer Lingus | EIN | 4.05 | 10.00 | - | - | 3.68 | - | 5.91 |
| HAWAIIAN AIRLINES | HAL | 4.05 | 9.28 | - | - | 5.06 | 5.00 | 5.85 |
| ETIHAD | ETD | 7.15 | 9.65 | - | 0.00 | 6.29 | - | 5.77 |
| wow air | WOW | 4.05 | 7.89 | 3.33 | 5.00 | 8.28 | - | 5.71 |
| CHINA AIRLINES | CAL | 6.51 | 9.04 | 0.22 | - | 6.23 | 5.00 | 5.40 |
| SINGAPORE AIRLINES | SIA | 8.32 | 8.58 | 0.22 | - | 4.45 | - | 5.39 |
| KOREAN AIR | KAL | 9.35 | 7.03 | 0.16 | - | 5.41 | 5.00 | 5.39 |
| CopaAirlines | CMP | 5.82 | 9.48 | 1.46 | 6.36 | 4.02 | 4.92 | 5.34 |
| CATHAY PACIFIC | CPA | 7.15 | 8.32 | 0.17 | - | 5.88 | 5.00 | 5.30 |
| AIR NEW ZEALAND | ANZ | 6.46 | 7.81 | 0.00 | - | 7.07 | 5.00 | 5.27 |
| airberlin | BER | 4.05 | 9.82 | - | 5.00 | 2.15 | - | 5.26 |
| 中国南方航空 CHINA SOUTHERN AIRLINES | CSN | 7.15 | 8.83 | 0.00 | - | 4.70 | 5.00 | 5.14 |
| EVA AIR | EVA | 6.90 | 8.06 | 0.29 | - | 4.87 | 5.00 | 5.02 |
| ATLAS AIR | GTI | 4.49 | 7.58 | 0.26 | 6.79 | 5.71 | 5.26 | 5.02 |
| FIJI AIRWAYS | FJI | 4.05 | 8.36 | 0.00 | - | 5.34 | - | 4.44 |
| Philippines | PAL | 7.46 | 6.04 | 0.00 | - | 4.17 | - | 4.42 |
| KALITTA AIR | CKS | 3.43 | 2.62 | 0.42 | - | 2.76 | 5.00 | 2.84 |
| QANTAS | QFA | 3.43 | 0.00 | 0.00 | - | 6.25 | - | 2.42 |
| **SFO Average** | | 6.29 | 9.14 | 1.95 | 7.29 | 5.73 | 5.66 | 6.44 |

**Airline Fly Quiet Rating**



| Airline | | Nationwide Fleet Noise Quality Rating | San Francisco Average Daily Jet Operations | San Francisco Score | Fleet Noise Quality Rating |
|---|---|---|---|---|---|
| Compass Airlines | CPZ | 10.00 | 14 | *10.00* | |
| Horizon Air | QXE | 10.00 | 0 | *10.00* | |
| SkyWest Airlines | SKW | 10.00 | 97 | *10.00* | |
| Emirates | UAE | 7.89 | 1 | *9.93* | |
| Air China | CCA | 3.46 | 1 | *9.85* | |
| Nippon Cargo Airlines | NCA | 3.90 | 1 | *9.74* | |
| Korean Air | KAL | 4.05 | 2 | *9.35* | |
| Lufthansa | DLH | 6.09 | 2 | *9.08* | |
| Air France | AFR | 5.49 | 2 | *8.41* | |
| Singapore Airlines | SIA | 5.93 | 2 | *8.32* | |
| Scandinavian Airlines | SAS | 4.96 | 1 | *8.13* | |
| Virgin Atlantic | VIR | 5.84 | 2 | *7.97* | |
| Icelandair | ICE | 7.72 | 0 | *7.72* | |
| Philippines | PAL | 5.09 | 1 | *7.46* | |
| Swiss | SWR | 5.17 | 1 | *7.28* | |
| Air India | AIC | 4.77 | 1 | *7.15* | |
| ANA | ANA | 5.43 | 1 | *7.15* | |
| Cathay Pacific | CPA | 4.18 | 2 | *7.15* | |
| China Southern Airlines | CSN | 5.64 | 1 | *7.15* | |
| Etihad | ETD | 0.00 | 0 | *7.15* | |
| Turkish Airlines | THY | 6.80 | 1 | *7.15* | |
| Japan Airlines | JAL | 4.20 | 1 | *7.13* | |
| EVA Air | EVA | 5.05 | 2 | *6.90* | |
| KLM Royal Dutch Airlines | KLM | 4.67 | 1 | *6.79* | |
| British Airways | BAW | 4.34 | 2 | *6.73* | |
| China Airlines | CAL | 3.62 | 2 | *6.51* | |
| Delta | DAL | 4.92 | 34 | *6.49* | |
| Air New Zealand | ANZ | 4.00 | 1 | *6.46* | |
| | | | | *6.29* | SFO AVERAGE |
| China Eastern | CES | 4.63 | 1 | *6.23* | |
| United | UAL | 5.83 | 186 | *5.87* | |
| AeroMexico | AMX | 5.54 | 3 | *5.82* | |
| CopaAirlines | CMP | 6.46 | 2 | *5.82* | |
| Sun Country Airlines | SCX | 5.82 | 2 | *5.82* | |
| WestJet | WJA | 5.82 | 2 | *5.82* | |
| Southwest | SWA | 5.70 | 45 | *5.81* | |

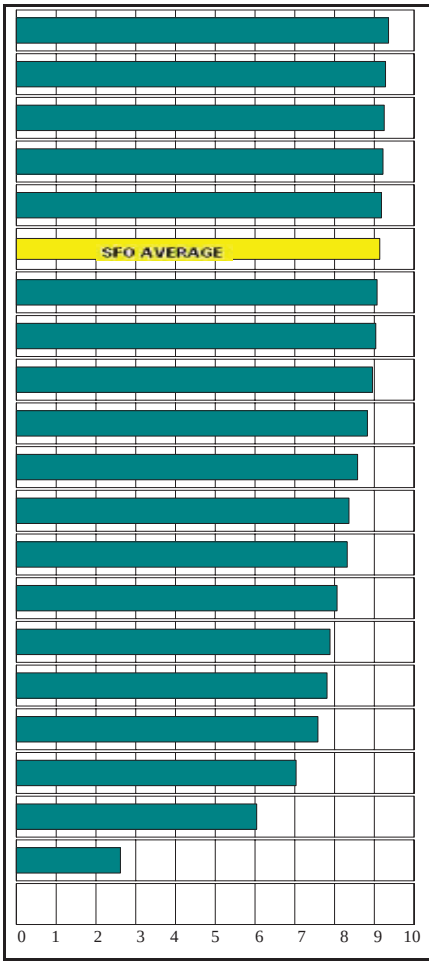
| Airline | | *Nationwide* *Fleet Noise Quality Rating* | *San Francisco* *Average Daily Jet Operations* | *Score* | Fleet Noise Quality Rating |
|---|---|---|---|---|---|
| AIR CANADA | ACA | 6.75 | 11 | *5.79* | |
| ASIANA AIRLINES | AAR | 3.93 | 1 | *5.22* | |
| Alaska | ASA | 5.10 | 17 | *5.18* | |
| FRONTIER AIRLINES | FFT | 6.41 | 6 | *5.18* | |
| Virgin america | VRD | 5.31 | 58 | *4.96* | |
| Avianca | TAI | 5.18 | 1 | *4.96* | |
| American Airlines | AAL | 3.94 | 36 | *4.92* | |
| volaris | VOI | 0.00 | 1 | *4.86* | |
| jetBlue | JBU | 6.13 | 17 | *4.78* | |
| ATLAS AIR | GTI | 0.93 | 2 | *4.49* | |
| airberlin | BER | 5.92 | 1 | *4.05* | |
| Aer Lingus | EIN | 4.05 | 1 | *4.05* | |
| Thomas Cook Airlines | TCX | 0.00 | 0 | *4.05* | |
| WOW air | WOW | 0.00 | 1 | *4.05* | |
| XL airways | XLF | 4.05 | 0 | *4.05* | |
| FINNAIR | FIN | 5.38 | 0 | *4.05* | |
| FIJI AIRWAYS | FJI | 0.00 | 0 | *4.05* | |
| HAWAIIAN AIRLINES | HAL | 6.21 | 2 | *4.05* | |
| FedEx | FDX | 2.80 | 1 | *3.84* | |
| KALITTA AIR | CKS | 0.60 | 0 | *3.43* | |
| CargoLogicAir | CLU | 0.00 | 0 | *3.43* | |
| QANTAS | QFA | 3.47 | 1 | *3.43* | |
| allegiant | AAY | 1.91 | 0 | *3.41* | |
| **AVERAGE** | | **4.67** | **10** | **6.29** | |



| Airline | | Noise Exceedances | | | | Noise Exceedance Quality Rating |
|---|---|---|---|---|---|---|
| | | *Total Noise Exceedances* | *Total Quarterly Operations* | *Exceedances per 1000 Operations* | ***Score*** | |
| AIRFRANCE | AFR | 0 | 294 | 0 | ***10.00*** | |
| ANA | ANA | 0 | 178 | 0 | ***10.00*** | |
| AIR CHINA | CCA | 0 | 181 | 0 | ***10.00*** | |
| 中國東方航空 CHINA EASTERN | CES | 0 | 258 | 0 | ***10.00*** | |
| Lufthansa | DLH | 0 | 362 | 0 | ***10.00*** | |
| Aer Lingus | EIN | 0 | 182 | 0 | ***10.00*** | |
| FINNAIR | FIN | 0 | 26 | 0 | ***10.00*** | |
| ICELANDAIR | ICE | 0 | 6 | 0 | ***10.00*** | |
| Horizon Air | QXE | 0 | 84 | 0 | ***10.00*** | |
| Scandinavian Airlines | SAS | 0 | 180 | 0 | ***10.00*** | |
| SWISS | SWR | 0 | 180 | 0 | ***10.00*** | |
| Thomas Cook Airlines | TCX | 0 | 27 | 0 | ***10.00*** | |
| virgin atlantic | VIR | 1 | 390 | 3 | ***9.99*** | |
| Emirates | UAE | 1 | 182 | 5 | ***9.98*** | |
| JAPAN AIRLINES | JAL | 1 | 181 | 6 | ***9.98*** | |
| TURKISH AIRLINES | THY | 1 | 180 | 6 | ***9.98*** | |
| SkyWest | SKW | 134 | 17,644 | 8 | ***9.97*** | |
| KLM Royal Dutch Airlines | KLM | 2 | 250 | 8 | ***9.96*** | |
| volaris | VOI | 2 | 239 | 8 | ***9.96*** | |
| sun country airlines | SCX | 6 | 354 | 17 | ***9.92*** | |
| Compass Airlines | CPZ | 53 | 2,520 | 21 | ***9.91*** | |
| Alaska | ASA | 72 | 3,151 | 23 | ***9.90*** | |
| virgin america | VRD | 284 | 10,601 | 27 | ***9.88*** | |
| BRITISH AIRWAYS | BAW | 10 | 359 | 28 | ***9.87*** | |
| DELTA | DAL | 193 | 6,212 | 31 | ***9.86*** | |
| AIR CANADA | ACA | 66 | 2,044 | 32 | ***9.85*** | |
| jetBlue | JBU | 108 | 3,098 | 35 | ***9.84*** | |
| Southwest | SWA | 311 | 8,245 | 38 | ***9.83*** | |
| airberlin | BER | 6 | 151 | 40 | ***9.82*** | |
| UNITED | UAL | 1,538 | 33,854 | 45 | ***9.80*** | |
| American Airlines | AAL | 305 | 6,581 | 46 | ***9.79*** | |
| WESTJET | WJA | 21 | 351 | 60 | ***9.73*** | |
| FRONTIER AIRLINES | FFT | 67 | 1,049 | 64 | ***9.71*** | |
| XL airways | XLF | 1 | 14 | 71 | ***9.68*** | |
| ETIHAD | ETD | 6 | 78 | 77 | ***9.65*** | |
| NCA Nippon Cargo Airlines | NCA | 15 | 152 | 99 | ***9.56*** | |
| FedEx | FDX | 26 | 261 | 100 | ***9.55*** | |
| CopaAirlines | CMP | 36 | 309 | 117 | ***9.48*** | |

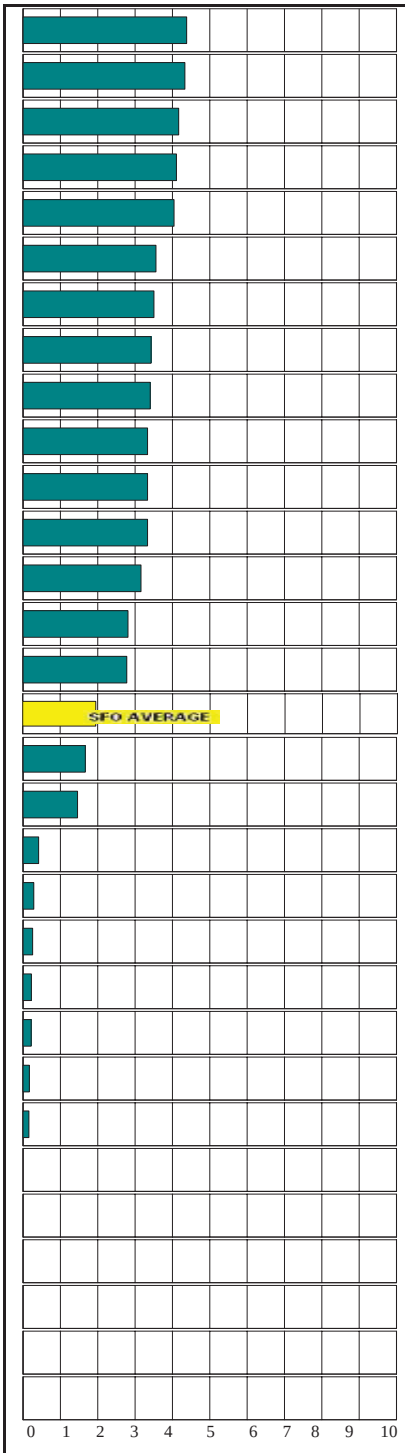
| Airline | | Noise Exceedances: *Total Noise Exceedances* | *Total Quarterly Operations* | *Exceedances per 1000 Operations* | ***Score*** |
|---|---|---|---|---|---|
| CargoLogicAir | CLU | 2 | 14 | 143 | ***9.36*** |
| HAWAIIAN AIRLINES | HAL | 58 | 364 | 159 | ***9.28*** |
| allegiant | AAY | 1 | 6 | 167 | ***9.25*** |
| Avianca | TAI | 45 | 259 | 174 | ***9.22*** |
| ASIANA AIRLINES | AAR | 41 | 225 | 182 | ***9.18*** |
| | | | | | ***9.14*** |
| AIR INDIA | AIC | 32 | 155 | 206 | ***9.07*** |
| CHINA AIRLINES | CAL | 76 | 355 | 214 | ***9.04*** |
| AEROMEXICO | AMX | 133 | 572 | 233 | ***8.95*** |
| 中国南方航空 CHINA SOUTHERN AIRLINES | CSN | 49 | 188 | 261 | ***8.83*** |
| SINGAPORE AIRLINES | SIA | 114 | 361 | 316 | ***8.58*** |
| FIJI AIRWAYS | FJI | 8 | 22 | 364 | ***8.36*** |
| CATHAY PACIFIC | CPA | 158 | 423 | 374 | ***8.32*** |
| EVA AIR | EVA | 167 | 388 | 430 | ***8.06*** |
| WOW air | WOW | 70 | 149 | 470 | ***7.89*** |
| AIR NEW ZEALAND | ANZ | 88 | 181 | 486 | ***7.81*** |
| ATLAS AIR | GTI | 187 | 348 | 537 | ***7.58*** |
| KOREAN AIR | KAL | 298 | 452 | 659 | ***7.03*** |
| Philippines | PAL | 226 | 257 | 879 | ***6.04*** |
| KALITTA AIR | CKS | 128 | 78 | 1641 | ***2.62*** |
| QANTAS | QFA | 320 | 144 | 2222 | ***0.00*** |

**Noise Exceedance Quality Rating**




| | | | | |
|---|---|---|---|---|
| **TOTAL** | **5,467** | **105,349** | | |
| **SFO AVERAGE** | | | **192** | **9.14** |

| Airline | | *Nighttime Departures ( 1:00 am to 6:00 am )* | | | | | | Nighttime Runway Use Rating |
|---|---|---|---|---|---|---|---|---|
| | | *Total* | *10L/R* | *28L/R Shoreline* | *01L/R* | *28L/R Straight* | ***Score*** | |
| jetBlue | JBU | **35** | 9% | 14% | 77% | 0% | ***4.38*** | |
| FRONTIER AIRLINES | FFT | **30** | 7% | 20% | 70% | 3% | ***4.33*** | |
| Virgin America | VRD | **8** | 13% | 0% | 88% | 0% | ***4.17*** | |
| American Airlines | AAL | **69** | 6% | 22% | 62% | 10% | ***4.11*** | |
| DELTA | DAL | **47** | 9% | 9% | 79% | 4% | ***4.04*** | |
| Alaska | ASA | **74** | 1% | 7% | 89% | 3% | ***3.56*** | |
| Southwest | SWA | **39** | 3% | 0% | 97% | 0% | ***3.50*** | |
| UNITED | UAL | **281** | 2% | 7% | 82% | 9% | ***3.43*** | |
| SkyWest | SKW | **47** | 2% | 2% | 91% | 4% | ***3.40*** | |
| AIR CANADA | ACA | **4** | 0% | 0% | 100% | 0% | ***3.33*** | |
| suncountry airlines | SCX | **1** | 0% | 0% | 100% | 0% | ***3.33*** | |
| WOW air | WOW | **1** | 0% | 0% | 100% | 0% | ***3.33*** | |
| Compass Airlines | CPZ | **76** | 0% | 0% | 95% | 5% | ***3.16*** | |
| Avianca | TAI | **89** | 4% | 1% | 69% | 26% | ***2.81*** | |
| AEROMEXICO | AMX | **54** | 4% | 0% | 72% | 24% | ***2.78*** | |
| | | | | | | | ***1.95*** | SFO AVERAGE |
| ASIANA AIRLINES | AAR | **6** | 17% | 0% | 0% | 83% | ***1.67*** | |
| CopaAirlines | CMP | **64** | 3% | 17% | 0% | 80% | ***1.46*** | |
| KALITTA AIR | CKS | **24** | 4% | 0% | 0% | 96% | ***0.42*** | |
| EVA AIR | EVA | **139** | 3% | 0% | 0% | 97% | ***0.29*** | |
| ATLAS AIR | GTI | **26** | 0% | 4% | 0% | 96% | ***0.26*** | |
| SINGAPORE AIRLINES | SIA | **90** | 2% | 0% | 0% | 98% | ***0.22*** | |
| CHINA AIRLINES | CAL | **92** | 2% | 0% | 0% | 98% | ***0.22*** | |
| CATHAY PACIFIC | CPA | **119** | 2% | 0% | 0% | 98% | ***0.17*** | |
| KOREAN AIR | KAL | **128** | 2% | 0% | 0% | 98% | ***0.16*** | |
| AIR NEW ZEALAND | ANZ | **1** | 0% | 0% | 0% | 100% | ***0.00*** | |
| 中国南方航空 CHINA SOUTHERN AIRLINES | CSN | **3** | 0% | 0% | 0% | 100% | ***0.00*** | |
| FIJI AIRWAYS | FJI | **3** | 0% | 0% | 0% | 100% | ***0.00*** | |
| NCA Nippon Cargo Airlines | NCA | **1** | 0% | 0% | 0% | 100% | ***0.00*** | |
| Philippines | PAL | **9** | 0% | 0% | 0% | 100% | ***0.00*** | |
| QANTAS | QFA | **2** | 0% | 0% | 0% | 100% | ***0.00*** | |

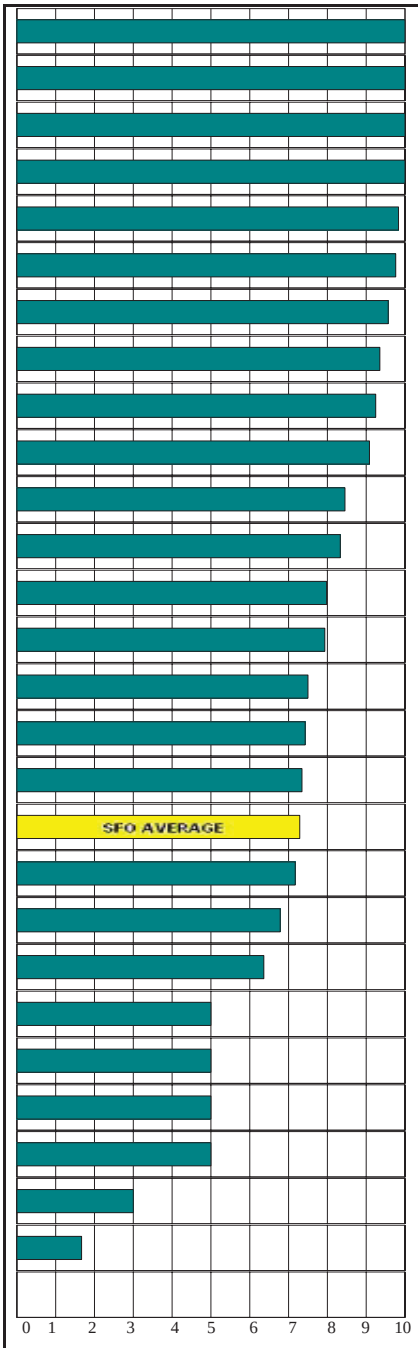



| | | | | | | |
|---|---|---|---|---|---|---|
| **TOTAL** | **1,562** | | | | | |
| **SFO AVERAGE** | | **3%** | **3%** | **42%** | **51%** | **1.95** |

## Shoreline Departure Rating - 2nd Quarter 2017

April 1 to June 30,2017

| Airline | | Shoreline Departures | | | | | Shoreline Departure Rating |
|---|---|---|---|---|---|---|---|
| | | Total | Successful | Marginal | Poor | Score | |
| FedEx | FDX | 16 | 100% | 0% | 0% | 10.00 | |
| FINNAIR | FIN | 1 | 100% | 0% | 0% | 10.00 | |
| Avianca | TAI | 1 | 100% | 0% | 0% | 10.00 | |
| virgin atlantic | VIR | 1 | 100% | 0% | 0% | 10.00 | |
| sun country airlines | SCX | 30 | 97% | 3% | 0% | 9.83 | |
| WESTJET | WJA | 21 | 95% | 5% | 0% | 9.76 | |
| Alaska | ASA | 116 | 92% | 7% | 1% | 9.57 | |
| Southwest | SWA | 85 | 87% | 13% | 0% | 9.35 | |
| FRONTIER AIRLINES | FFT | 53 | 85% | 15% | 0% | 9.25 | |
| Virgin america | VRD | 273 | 83% | 15% | 1% | 9.08 | |
| AIR CANADA | ACA | 97 | 72% | 25% | 3% | 8.45 | |
| Compass Airlines | CPZ | 3 | 67% | 33% | 0% | 8.33 | |
| American Airlines | AAL | 270 | 61% | 37% | 1% | 7.98 | |
| jetBlue | JBU | 92 | 59% | 41% | 0% | 7.93 | |
| Thomas Cook Airlines | TCX | 2 | 50% | 50% | 0% | 7.50 | |
| SkyWest | SKW | 241 | 67% | 14% | 19% | 7.43 | |
| UNITED | UAL | 940 | 60% | 27% | 13% | 7.35 | |
| | | | | | | 7.29 | SFO AVERAGE |
| DELTA | DAL | 251 | 54% | 35% | 11% | 7.17 | |
| ATLAS AIR | GTI | 14 | 50% | 36% | 14% | 6.79 | |
| CopaAirlines | CMP | 11 | 27% | 73% | 0% | 6.36 | |
| airberlin | BER | 4 | 0% | 100% | 0% | 5.00 | |
| Lufthansa | DLH | 1 | 0% | 100% | 0% | 5.00 | |
| Horizon Air | QXE | 1 | 0% | 100% | 0% | 5.00 | |
| WOW | WOW | 2 | 0% | 100% | 0% | 5.00 | |
| KLM Royal Dutch Airlines | KLM | 15 | 20% | 20% | 60% | 3.00 | |
| AIR INDIA | AIC | 3 | 0% | 33% | 67% | 1.67 | |
| ETIHAD | ETD | 1 | 0% | 0% | 100% | 0.00 | |
| **TOTAL** | | **2,545** | | | | | |
| **SFO AVERAGE** | | | **57%** | **33%** | **11%** | **7.29** | |



## Gap Departure Climb Rating - 2nd Quarter 2017

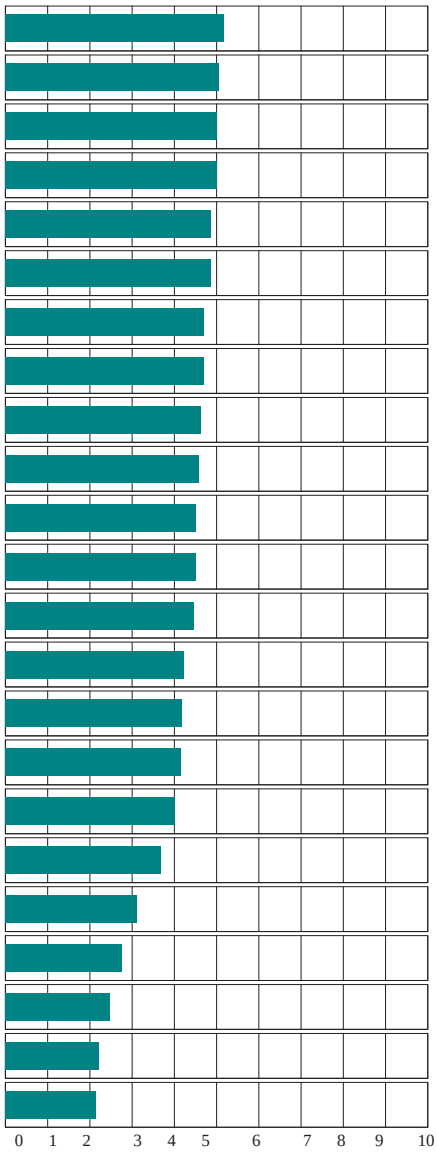
April 1 to June 30, 2017

| Airline | | Gap Departures | | Gap Departure Quality Rating |
|---|---|---|---|---|
| | | Total | Score | |
| XL airways | XLF | 1 | 10.00 | |
| volaris | VOI | 15 | 9.00 | |
| ASIANA AIRLINES | AAR | 111 | 8.83 | |
| WOW air | WOW | 48 | 8.28 | |
| CargoLogicAir | CLU | 5 | 8.25 | |
| virgin atlantic | VIR | 92 | 8.18 | |
| AIR CHINA | CCA | 90 | 8.06 | |
| AIR INDIA | AIC | 73 | 7.77 | |
| ANA | ANA | 88 | 7.36 | |
| Lufthansa | DLH | 174 | 7.23 | |
| AIR NEW ZEALAND | ANZ | 87 | 7.07 | |
| DELTA | DAL | 223 | 6.87 | |
| AEROMEXICO | AMX | 38 | 6.84 | |
| Alaska | ASA | 111 | 6.79 | |
| Compass Airlines | CPZ | 163 | 6.62 | |
| NCA Nippon Cargo Airlines | NCA | 75 | 6.62 | |
| SkyWest AIRLINES | SKW | 936 | 6.57 | |
| JAPAN AIRLINES | JAL | 85 | 6.40 | |
| FINNAIR | FIN | 12 | 6.35 | |
| Southwest | SWA | 434 | 6.32 | |
| ETIHAD | ETD | 33 | 6.29 | |
| AIRFRANCE | AFR | 142 | 6.26 | |
| QANTAS | QFA | 71 | 6.25 | |
| CHINA AIRLINES | CAL | 174 | 6.23 | |
| Avianca | TAI | 25 | 6.10 | |
| Thomas Cook Airlines | TCX | 5 | 6.00 | |
| Scandinavian Airlines | SAS | 87 | 5.96 | |
| CATHAY PACIFIC | CPA | 204 | 5.88 | |
| | | | 5.73 | SFO AVERAGE |
| ATLAS AIR | GTI | 74 | 5.71 | |
| UNITED | UAL | 3751 | 5.64 | |
| jetBlue | JBU | 121 | 5.64 | |
| KOREAN AIR | KAL | 222 | 5.41 | |
| FIJI AIRWAYS | FJI | 11 | 5.34 | |
| KLM Royal Dutch Airlines | KLM | 16 | 5.23 | |

## Gap Departure Climb Rating - 2nd Quarter 2017

April 1 to June 30, 2017

| Airline | | Gap Departures Total | Gap Departures Score |
|---|---|---|---|
| 中國東方航空 CHINA EASTERN | CES | 125 | 5.17 |
| HAWAIIAN AIRLINES | HAL | 21 | 5.06 |
| ICELANDAIR | ICE | 1 | 5.00 |
| WESTJET | WJA | 4 | 5.00 |
| EVA AIR | EVA | 189 | 4.87 |
| Emirates | UAE | 89 | 4.86 |
| 中国南方航空 CHINA SOUTHERN AIRLINES | CSN | 88 | 4.70 |
| AIR CANADA | ACA | 58 | 4.70 |
| SWISS | SWR | 86 | 4.62 |
| Virgin America | VRD | 626 | 4.59 |
| BRITISH AIRWAYS | BAW | 167 | 4.51 |
| suncountry airlines | SCX | 5 | 4.50 |
| SINGAPORE AIRLINES | SIA | 178 | 4.45 |
| Horizon Air | QXE | 8 | 4.22 |
| Philippines | PAL | 124 | 4.17 |
| FRONTIER AIRLINES | FFT | 9 | 4.17 |
| CopaAirlines | CMP | 137 | 4.02 |
| Aer Lingus | EIN | 89 | 3.68 |
| FedEx | FDX | 12 | 3.13 |
| KALITTA AIR | CKS | 38 | 2.76 |
| TURKISH AIRLINES | THY | 84 | 2.49 |
| American Airlines | AAL | 468 | 2.22 |
| airberlin | BER | 43 | 2.15 |

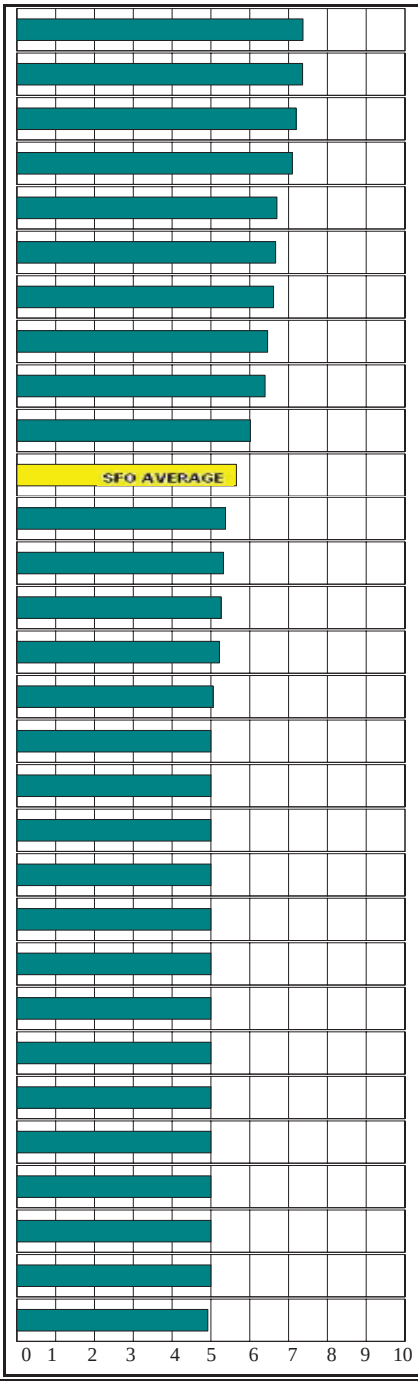



| | | |
|---|---|---|
| **TOTAL** | **10446** | |
| **SFO Average** | | **5.73** |

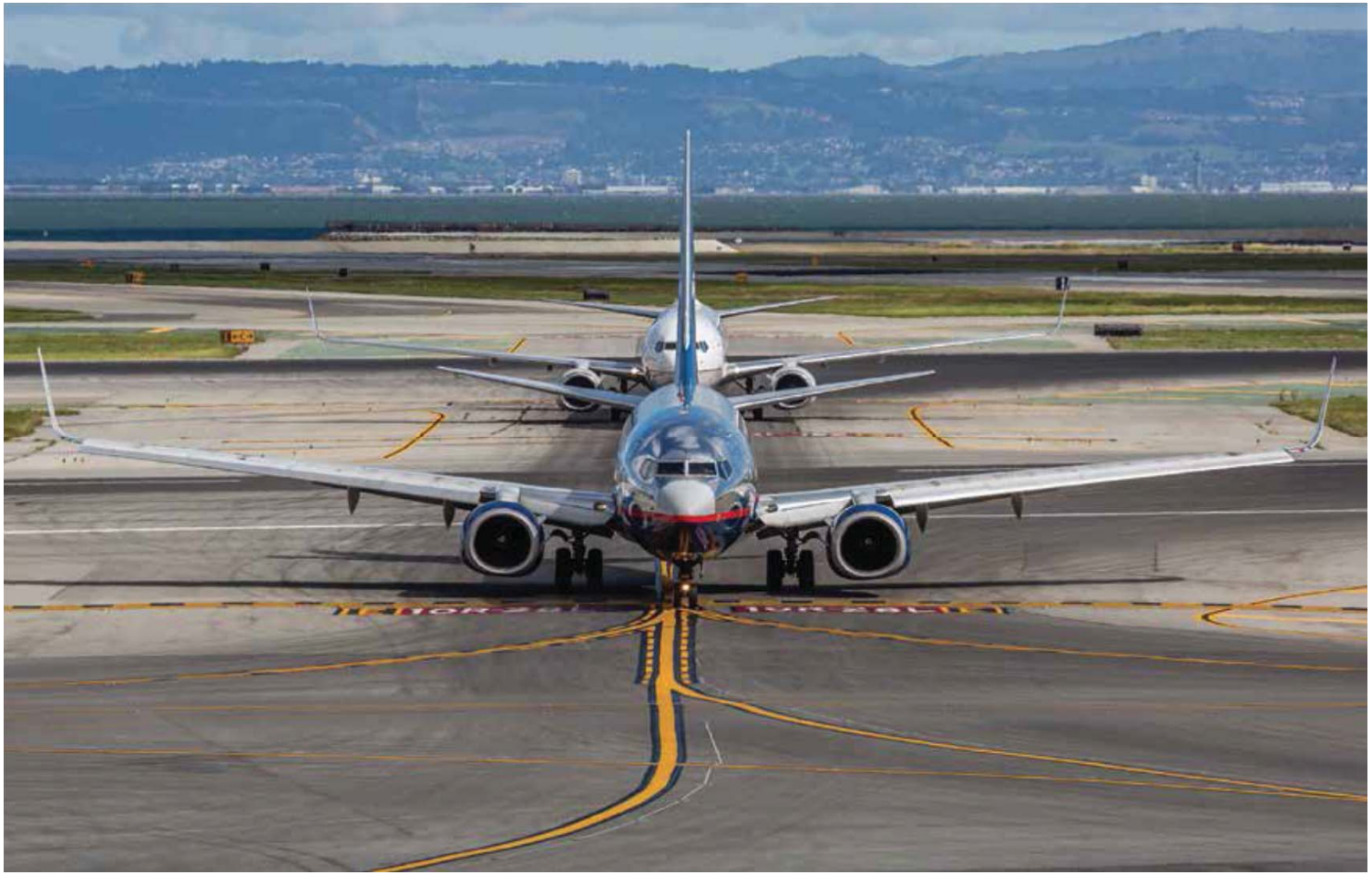
## Foster City Arrival Rating - 2nd Quarter 2017

April 1 to June 30,2017

| Airline | | Foster City Arrivals | | | | | Foster City Arrival Rating |
|---|---|---|---|---|---|---|---|
| | | *Total* | *Successful* | *Marginal* | *Poor* | *Score* | |
| jetBlue | JBU | **234** | 47% | 53% | 0% | *7.37* | |
| AIR CANADA | ACA | **108** | 47% | 53% | 0% | *7.36* | |
| American Airlines | AAL | **533** | 44% | 55% | 0% | *7.20* | |
| DELTA | DAL | **348** | 43% | 57% | 1% | *7.10* | |
| FRONTIER AIRLINES | FFT | **100** | 35% | 64% | 1% | *6.70* | |
| suncountry airlines | SCX | **6** | 33% | 67% | 0% | *6.67* | |
| Southwest | SWA | **347** | 34% | 65% | 1% | *6.61* | |
| virgin america | VRD | **387** | 29% | 71% | 0% | *6.46* | |
| UNITED | UAL | **1,462** | 28% | 71% | 1% | *6.40* | |
| FedEx | FDX | **59** | 20% | 80% | 0% | *6.02* | |
| | | | | | | *5.66* | SFO AVERAGE |
| Compass Airlines | CPZ | **146** | 8% | 92% | 0% | *5.38* | |
| AEROMEXICO | AMX | **31** | 6% | 94% | 0% | *5.32* | |
| ATLAS AIR | GTI | **76** | 5% | 95% | 0% | *5.26* | |
| Avianca | TAI | **91** | 7% | 91% | 2% | *5.22* | |
| SkyWest AIRLINES | SKW | **266** | 5% | 91% | 4% | *5.06* | |
| ASIANA AIRLINES | AAR | **10** | 0% | 100% | 0% | *5.00* | |
| AIR INDIA | AIC | **1** | 0% | 100% | 0% | *5.00* | |
| AIR NEW ZEALAND | ANZ | **1** | 0% | 100% | 0% | *5.00* | |
| Alaska | ASA | **160** | 2% | 96% | 2% | *5.00* | |
| CHINA AIRLINES | CAL | **2** | 0% | 100% | 0% | *5.00* | |
| KALITTA AIR | CKS | **28** | 0% | 100% | 0% | *5.00* | |
| CATHAY PACIFIC | CPA | **4** | 0% | 100% | 0% | *5.00* | |
| 中国南方航空 CHINA SOUTHERN AIRLINES | CSN | **1** | 0% | 100% | 0% | *5.00* | |
| EVA AIR | EVA | **5** | 0% | 100% | 0% | *5.00* | |
| HAWAIIAN AIRLINES | HAL | **6** | 0% | 100% | 0% | *5.00* | |
| KOREAN AIR | KAL | **83** | 0% | 100% | 0% | *5.00* | |
| NCA Nippon Cargo Airlines | NCA | **2** | 0% | 100% | 0% | *5.00* | |
| WESTJET | WJA | **10** | 0% | 100% | 0% | *5.00* | |
| CopaAirlines | CMP | **63** | 3% | 92% | 5% | *4.92* | |




| | | | | | |
|---|---|---|---|---|---|
| **TOTAL** | **4,570** | | | | |
| **SFO AVERAGE** | | **14%** | **86%** | **1%** | **5.66** |

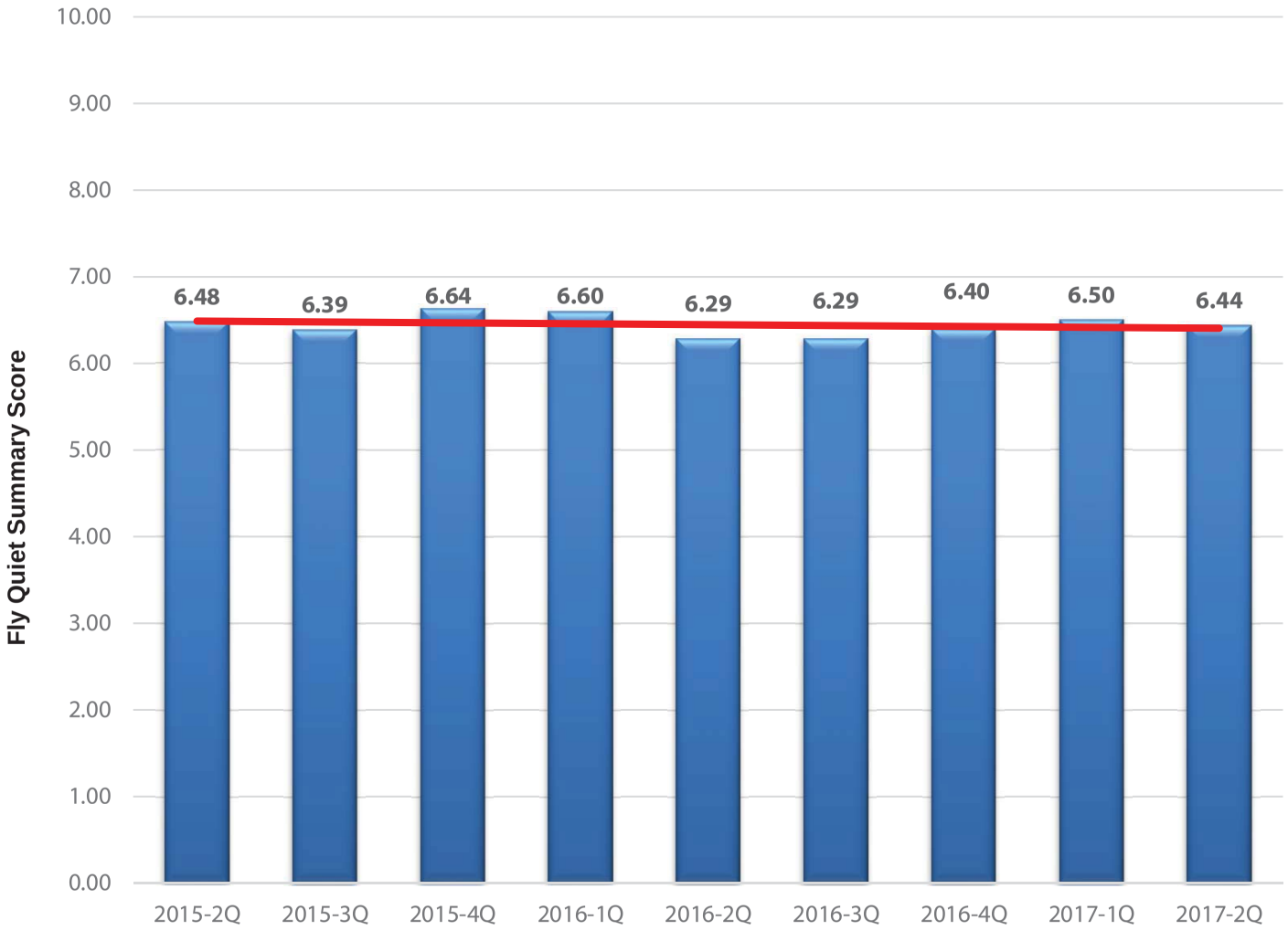


# Fly Quiet Report

Presented at the August 2, 2017
Airport Community Roundtable Meeting
Aircraft Noise Abatement Office
Second Quarter 2017

SFO San Francisco International Airport

# Fly Quiet Summary Averages

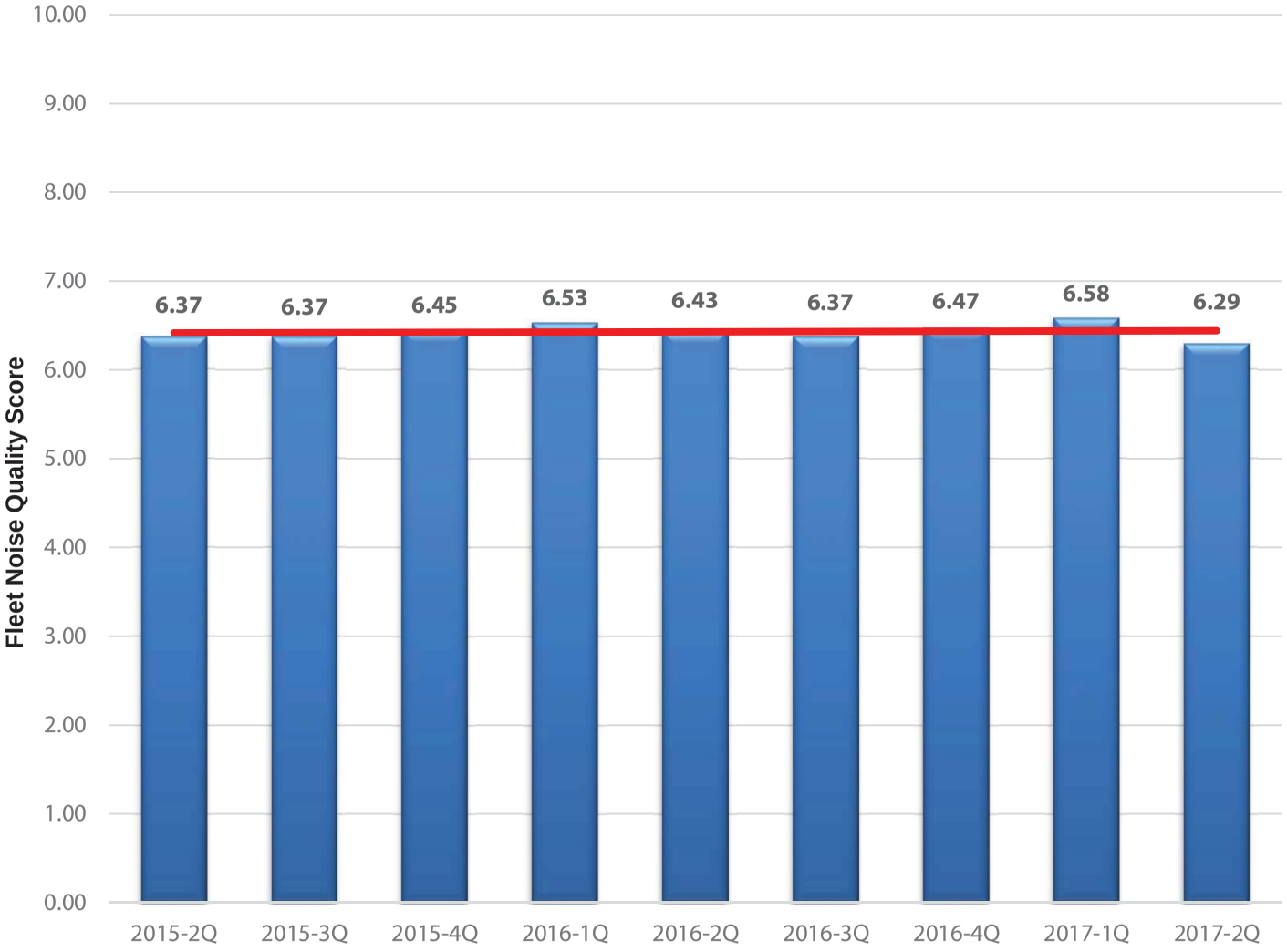



Top 5

Bottom 5

Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

# Fleet Noise Quality Averages



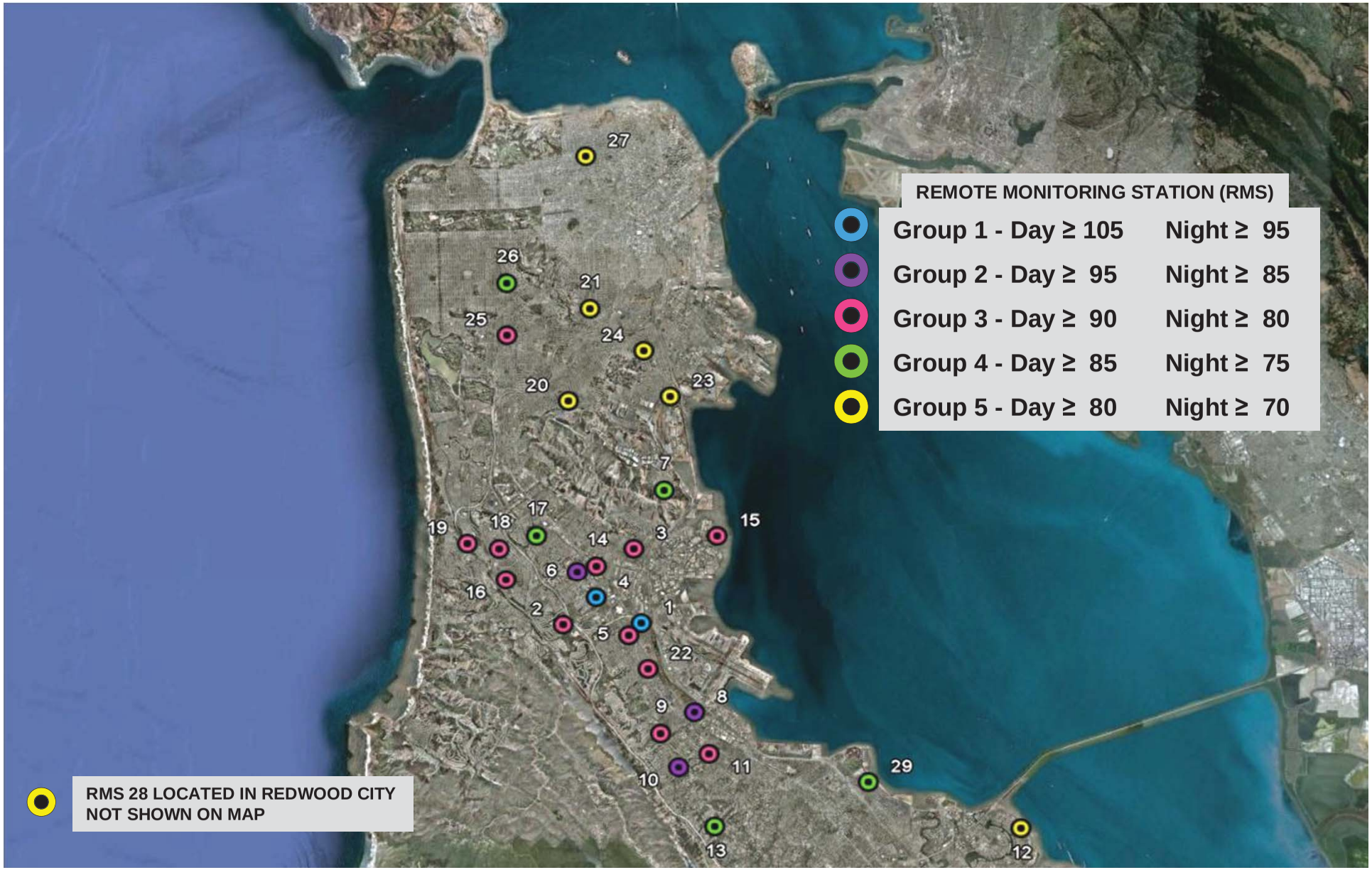

Top 5

Bottom 5

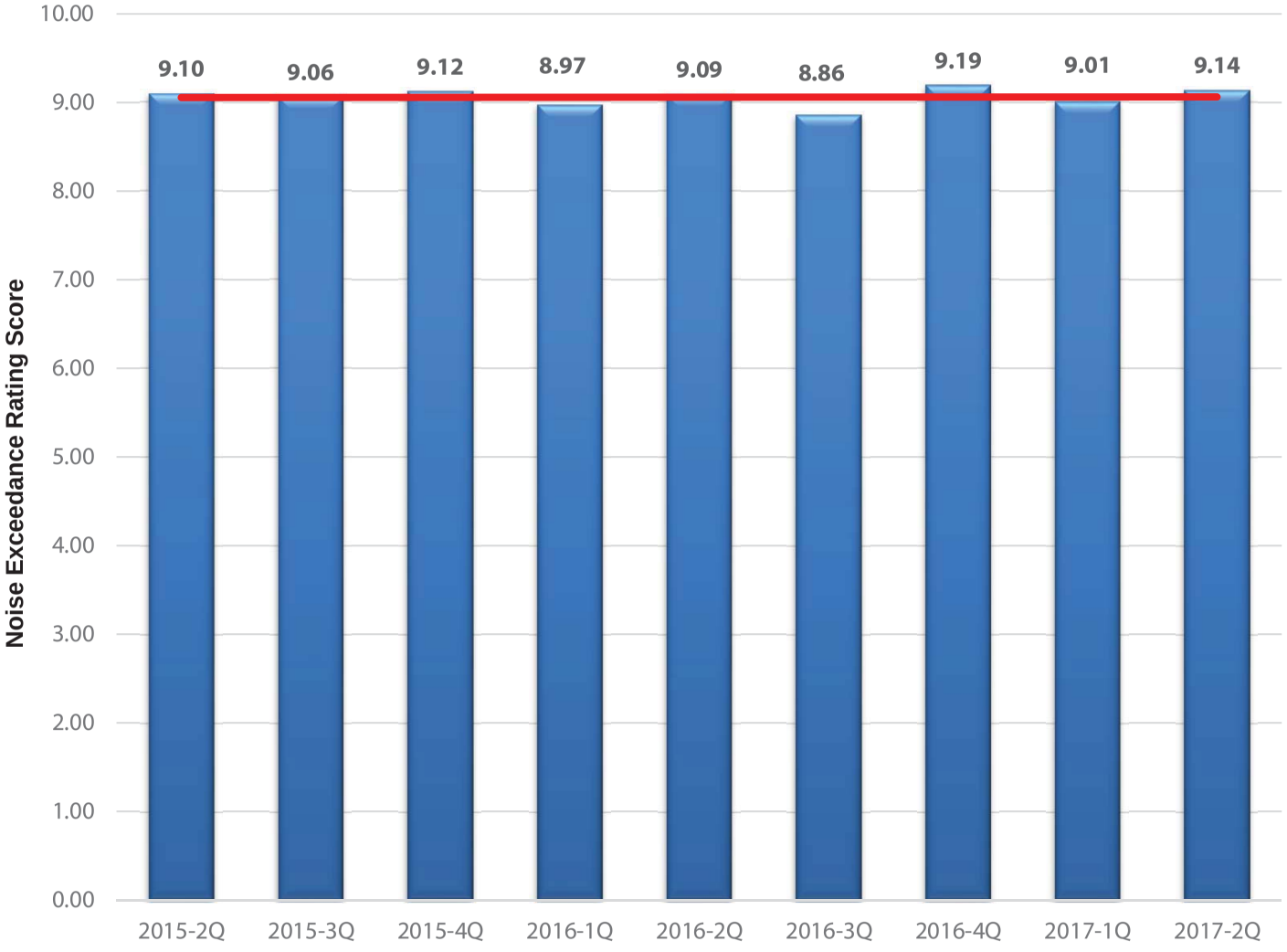
Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

# Noise Exceedance Rating

## Noise Monitor Day/Night Thresholds



# Noise Exceedance Rating Averages

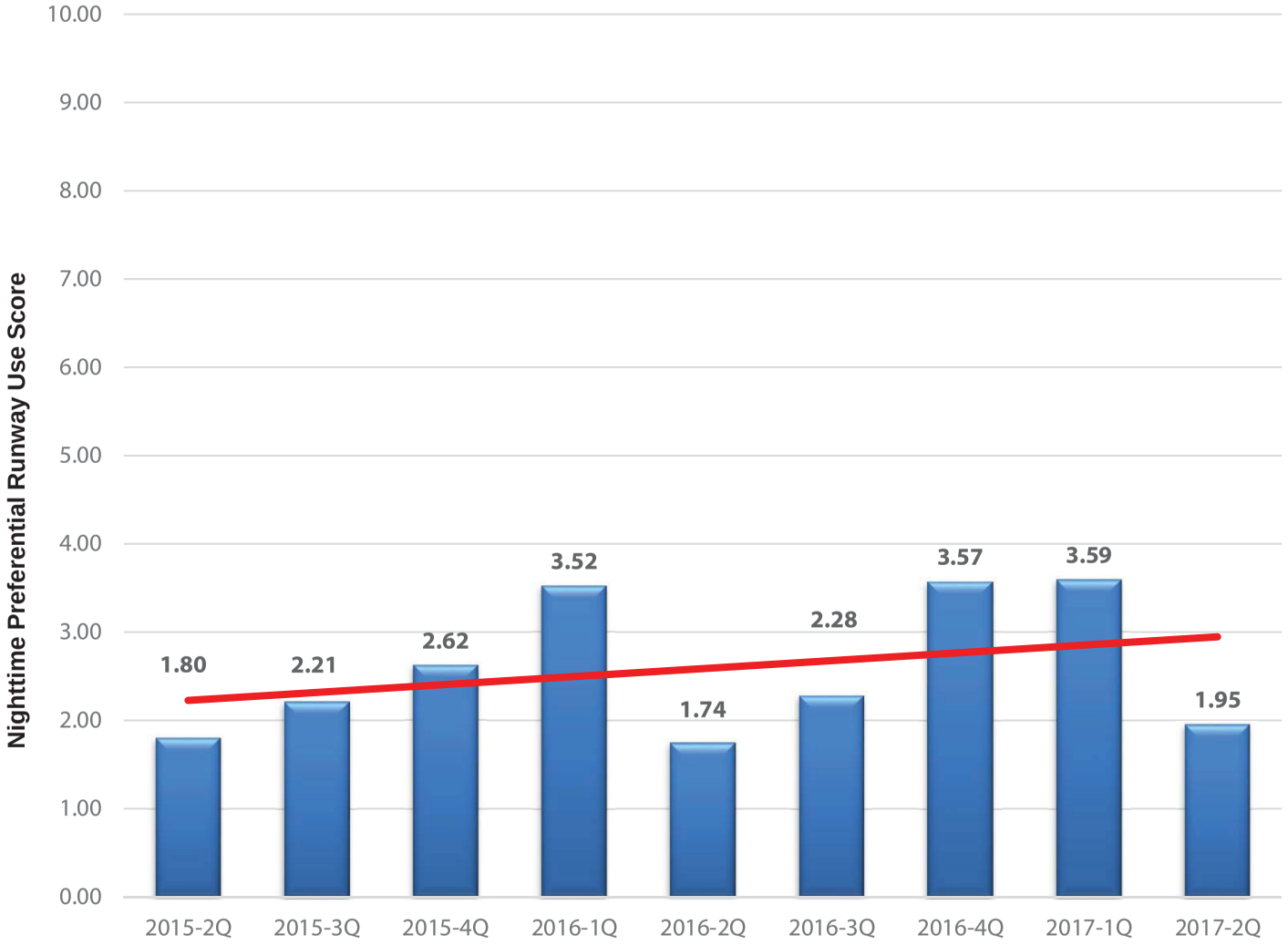



Top 5

Bottom 5

# Nighttime Preferential Runway Use

# Nighttime Preferential Runway Use Averages

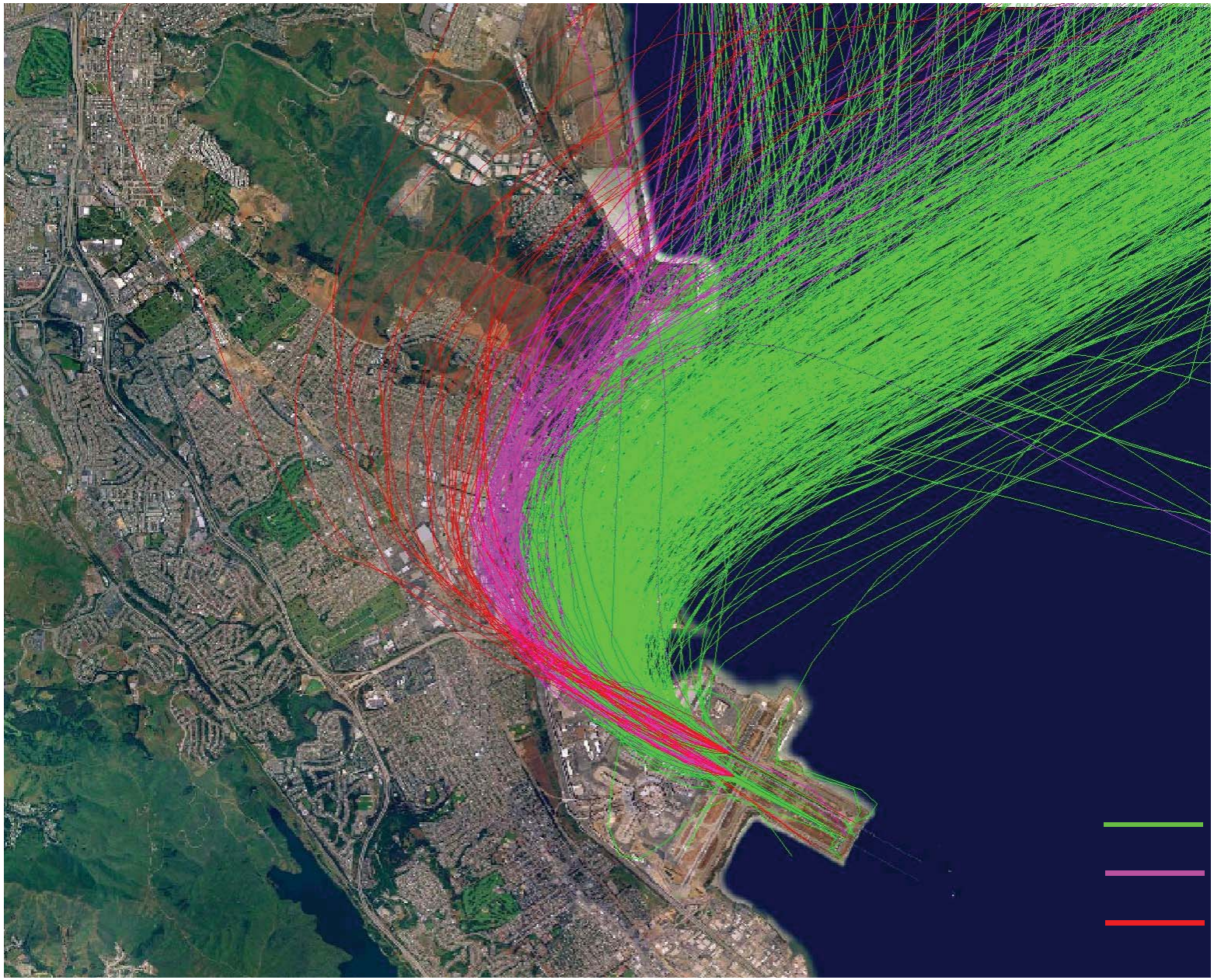



Top 5

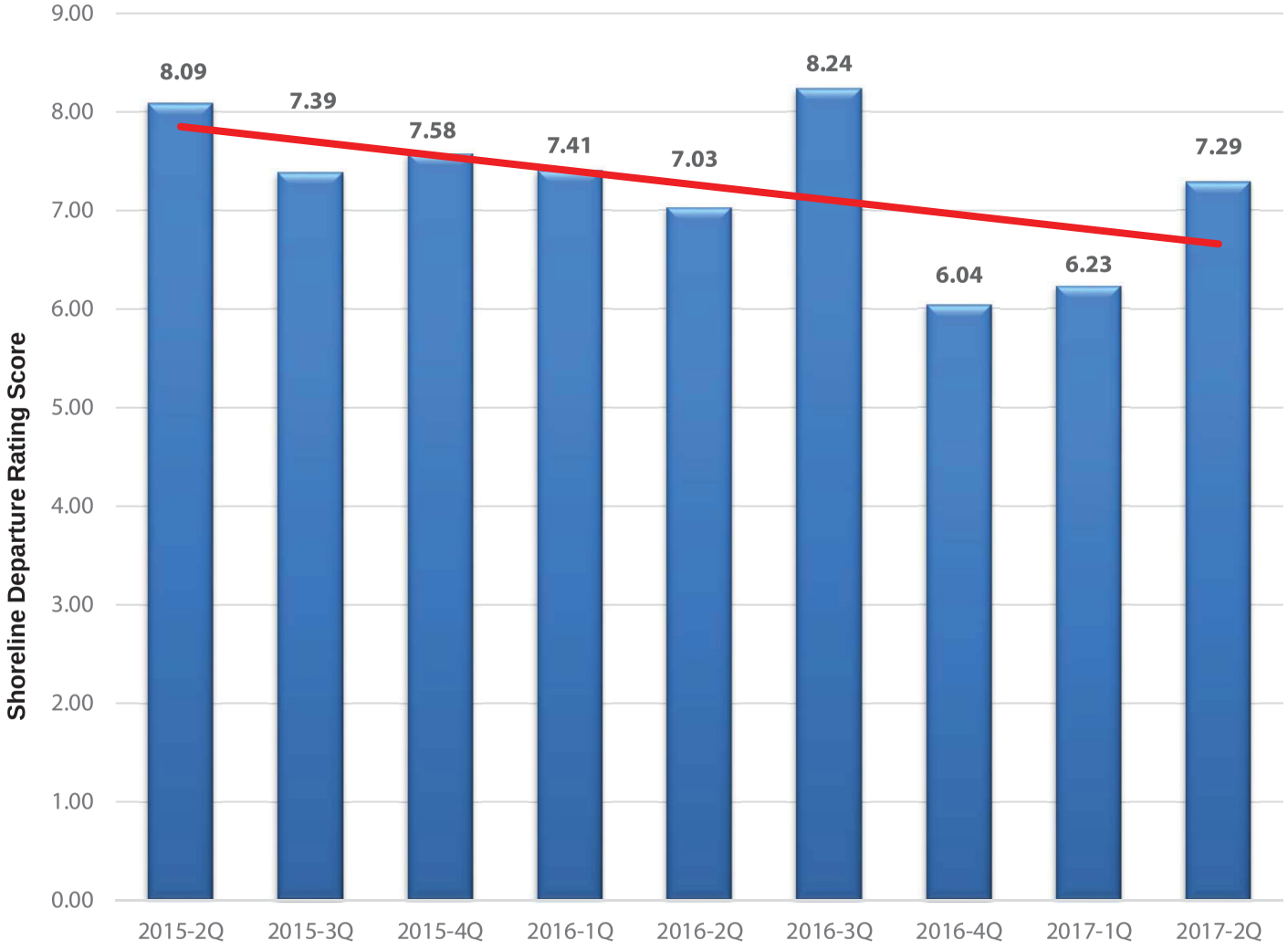
Bottom 5

Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

# Shoreline Departure Rating



# Shoreline Departure Rating Averages

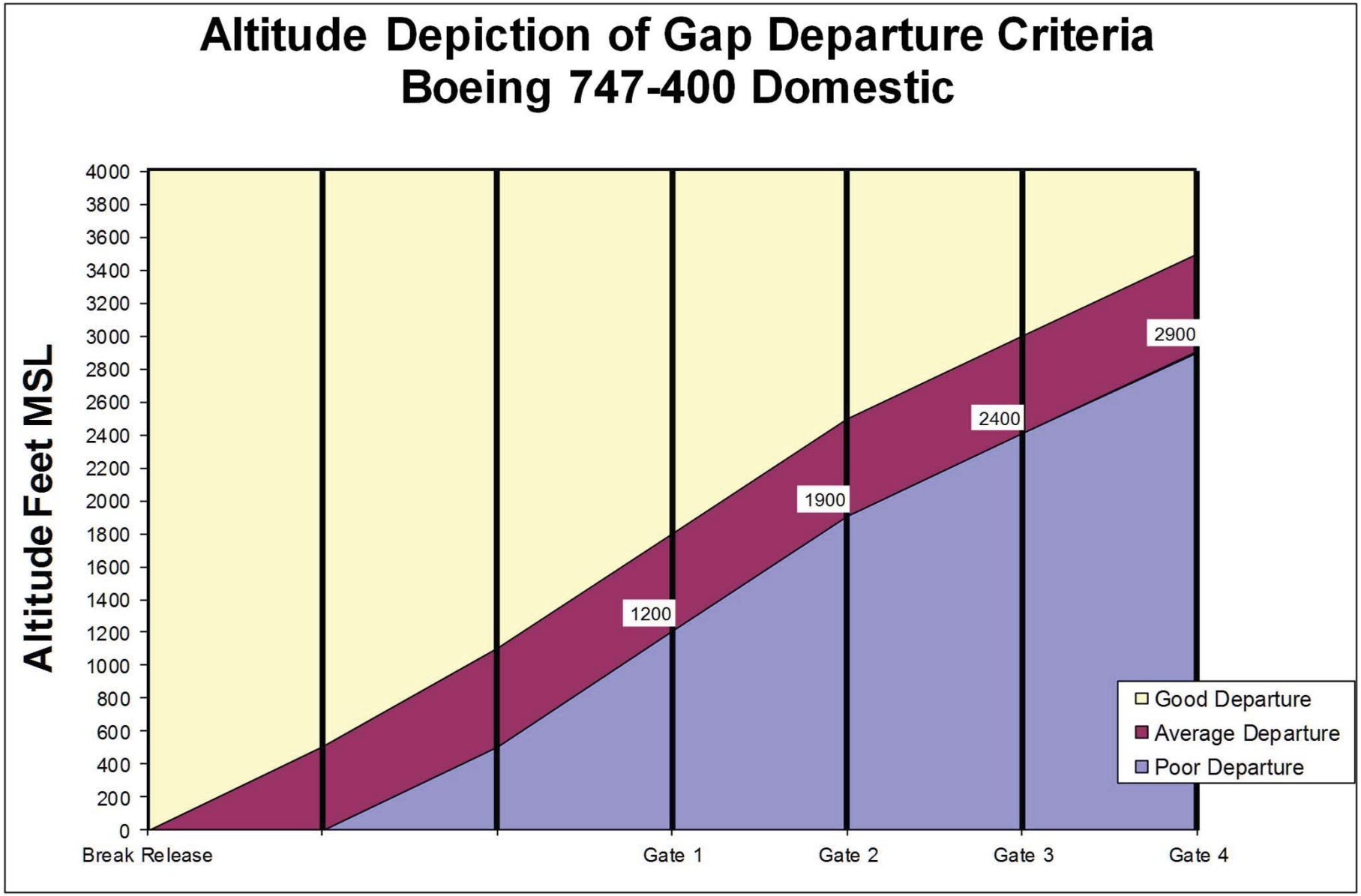



Top 5

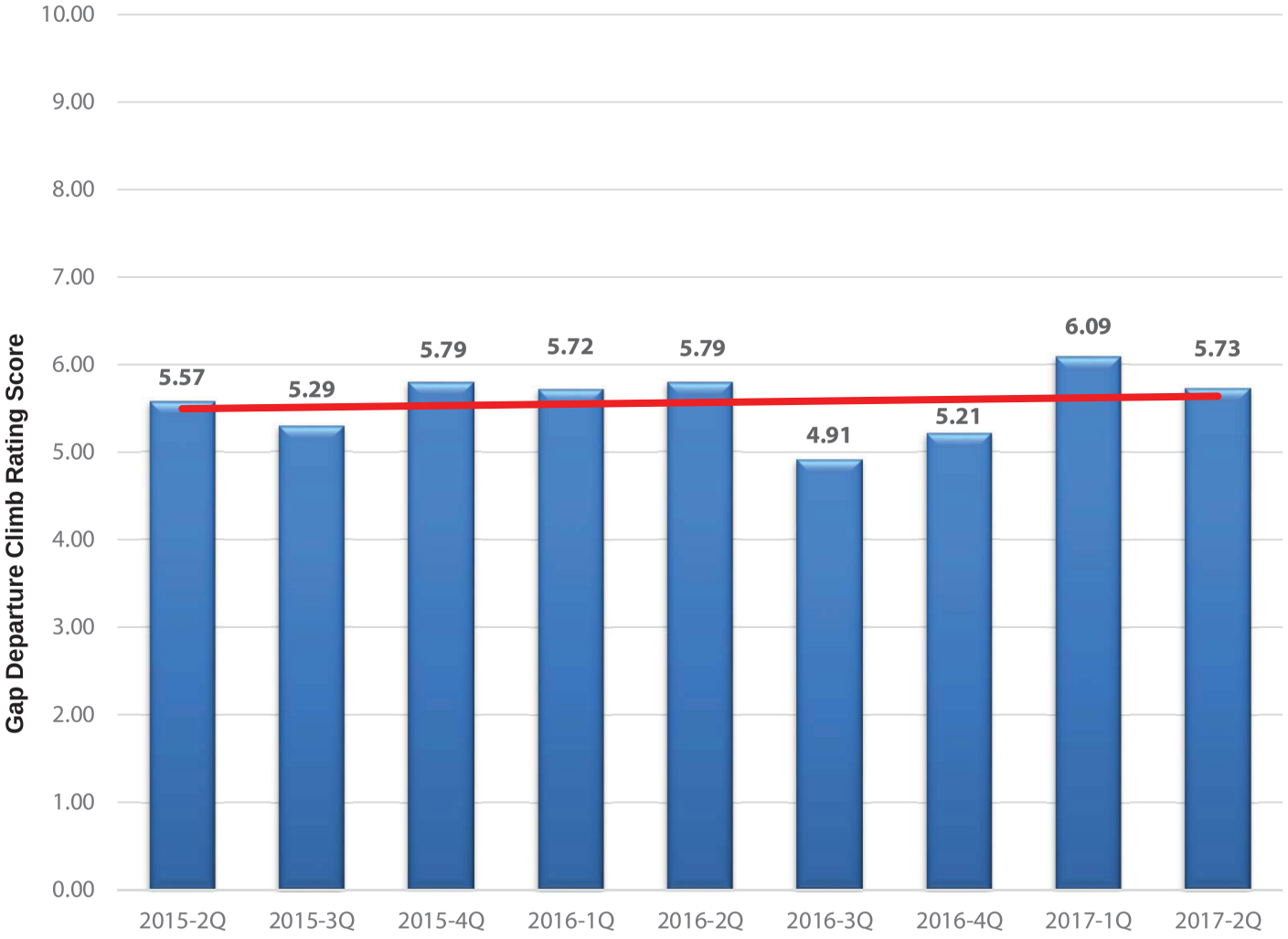
Bottom 5

Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

# Gap Departure Rating



# Gap Departure Climb Rating Averages

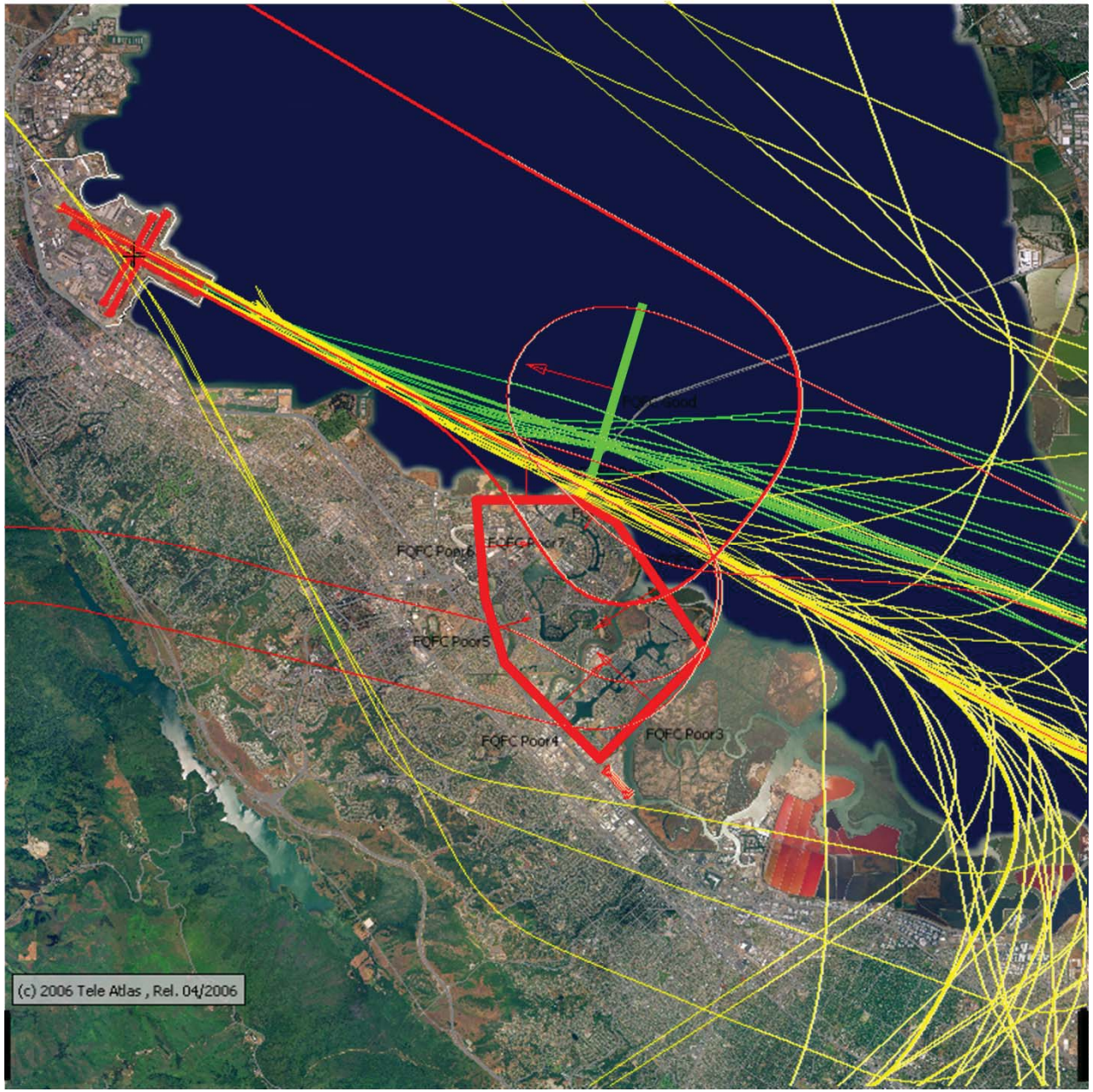



Top 5

Bottom 5

Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

# Foster City Arrival Rating

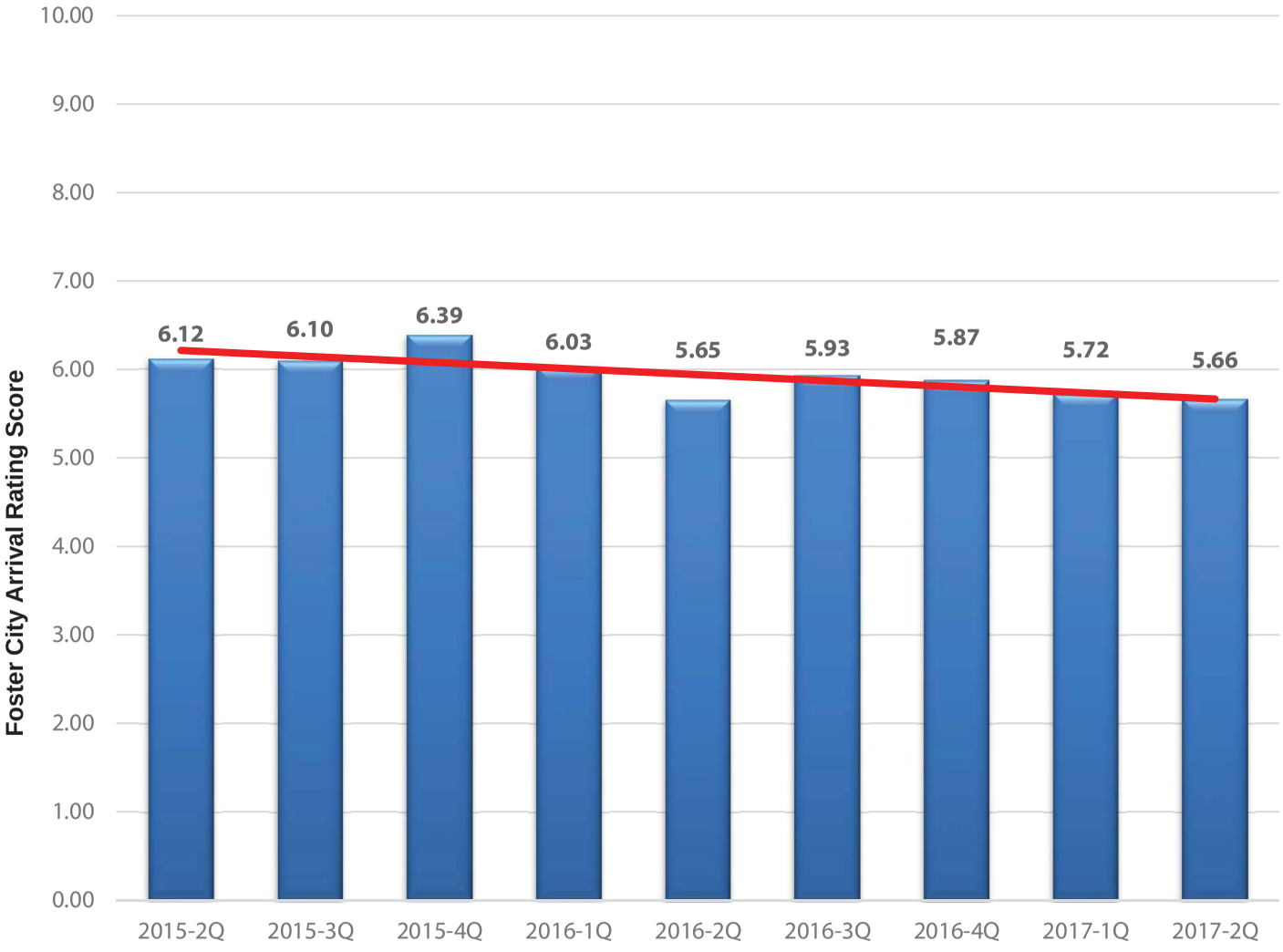



Good (+2 points)

Marginal (+1 points)

Poor (0 points)

# Foster City Arrival Rating Averages




Top 5

Bottom 5

Average of Quarterly Averages, Airline Rankings are for top 5 and bottom 5 performers for this category for current quarter, new airlines to top and bottom 5

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## Dave Ong (AIR)

**From:** Dave Ong (AIR)
**Sent:** Wednesday, July 19, 2017 2:19 PM
**To:** 'awengert@portolavalley.net'; 'Sue Chaput'
**Cc:** Bert Ganoung (AIR); 'James Castaneda'
**Subject:** 2Q2017 Aircraft Noise Monitoring Results for Portola Valley
**Attachments:** Portola Valley Noise Monitoring Report 1Q 2017.pdf; Portola Valley Noise Montoring 2Q 2017 Datasheet.pdf

Dear Honorable Ann Wengert,

In an effort to provide noise monitoring results more quickly and efficiently, our office has produced a new 2-page "datasheet" of the results. All the information from the lengthy 15 page report are now available in this easy to read datasheet. The main benefits of providing information in this format are (1) one can readily locate the information set that is most important to them without scouring through numerous pages and (2) easily compare different datasheets to determine any trends.

I have attached the previous quarter's report along with this recent measurement (May 3-16) results in the datasheet format. Please provide feedback and let me know if this new format is better or if you prefer the previous format.

Thank you,

David

**David Ong**
Noise Systems Manager | Planning, Design & Construction
San Francisco International Airport | P.O. Box 8097 | San Francisco, CA 94128
Tel 650-821-5100 | flysfo.com

Facebook | Twitter | YouTube | Instagram | LinkedIn

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Short Term Noise Monitoring Report

# Portola Valley 2Q 2017

May 3 - 16

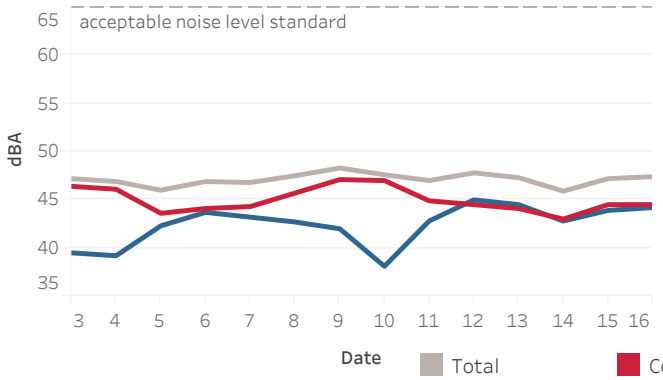
Aircraft CNEL: 43dBA
Community CNEL: 45dBA
Total CNEL: 47dBA
SEL: 72dBA
LMax: 62dBA
Ambient Noise: 43dBA
Noise Monitor Treshold: 55dBA (Day), 50dBA(Night)
SFO Aircraft Noise Events: 148 per day
SFO Operations Flow: West Flow (all days)
Cause of Aircraft overflights over Portola Valley:
Delayed Vectoring, Nighttime Delays

## Daily Noise Event Averages

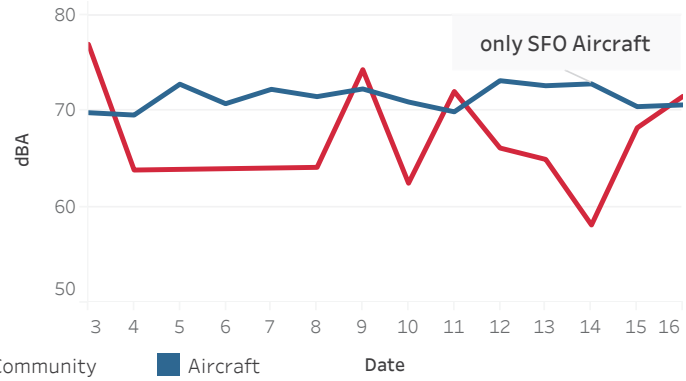
| | Date | SFO Noise Events | SFO Avg. SEL (dBA) | SFO Avg. Lmax (dBA) | Non-SFO Noise Events | Non-SFO Avg. SEL (dBA) | Non-SFO Avg. Lmax (dBA) | Community Noise Events | Community Avg. SEL (dBA) | Community Avg. Lmax (dBA) |
|---|---|---|---|---|---|---|---|---|---|---|
| May | 3 | 38 | 70 | 59 | 15 | 71 | 62 | 20 | 77 | 62 |
| | 4 | 78 | 70 | 60 | 8 | 73 | 64 | 16 | 64 | 56 |
| | 5 | 229 | 73 | 63 | 17 | 75 | 65 | | | |
| | 6 | 173 | 71 | 60 | 17 | 74 | 65 | | | |
| | 7 | 205 | 72 | 62 | 44 | 67 | 59 | | | |
| | 8 | 127 | 71 | 60 | 16 | 71 | 61 | 8 | 64 | 58 |
| | 9 | 83 | 72 | 62 | 46 | 73 | 63 | 68 | 74 | 62 |
| | 10 | 186 | 71 | 62 | 19 | 72 | 62 | 16 | 62 | 55 |
| | 11 | 240 | 70 | 60 | 27 | 70 | 61 | 44 | 72 | 63 |
| | 12 | 208 | 73 | 63 | 65 | 73 | 62 | 12 | 66 | 59 |
| | 13 | 192 | 73 | 62 | 106 | 76 | 68 | 8 | 65 | 55 |
| | 14 | 177 | 73 | 63 | 125 | 72 | 63 | 4 | 58 | 50 |
| | 15 | 53 | 70 | 60 | 15 | 74 | 64 | 20 | 68 | 64 |
| | 16 | 77 | 71 | 61 | 5 | 71 | 63 | 4 | 72 | 61 |
| Daily Average | | **148** | **71** | **61** | **38** | **72** | **63** | **20** | **67** | **59** |

**SFO Events** are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft.
**SEL** - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and its energy is compressed into one second.
**Lmax** - The maximum noise level is a measurement of the peak level of a noise event.
**CNEL-** This metric is used to assess and regulate aircraft noise exposure in communities surrounding the airport. California Title 21 Noise Regulations established acceptable level of aircraft noise of 65dBA CNEL.

Community Noise Exposure Level (CNEL)



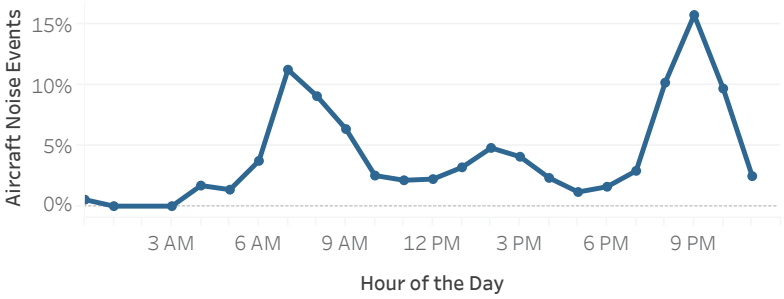

Sound Exposure Level (SEL) Comparison



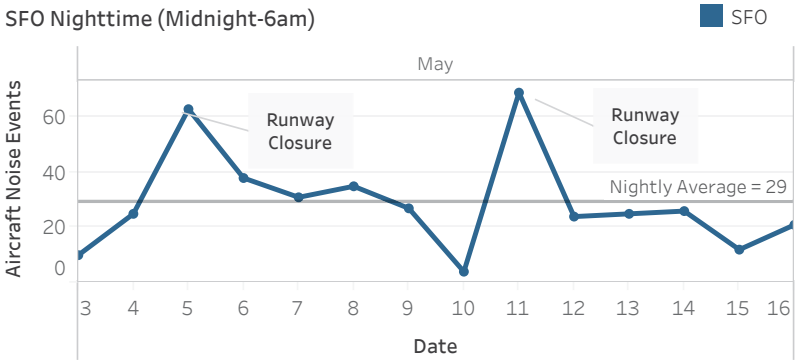

## SFO Aircraft Noise Events by Day (7am-7pm), Evening (7pm-10pm) and Night (10pm-7am)

| | Noise Events | SFO Noise Events (%) | Avg. SEL (dBA) | Min. SEL (dBA) | Max. SEL (dBA) | Avg. Lmax (dBA) | Min. LMax (dBA) | Max. LMax (dBA) | Avg. Duration (sec) | Min. Duration (sec) | Max. Duration (sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | 1,058 | 51% | 72 | 63 | 81 | 62 | 56 | 70 | 24 | 8 | 60 |
| Evening | 598 | 29% | 72 | 64 | 78 | 62 | 56 | 67 | 21 | 8 | 38 |
| Night | 410 | 20% | 70 | 59 | 76 | 60 | 51 | 67 | 28 | 8 | 55 |

## SFO Noise Events by Hour of the Day




## SFO Nighttime (Midnight-6am)




## Noise Reporters

| | Noise Reporters | Noise Reports |
|---|---|---|
| 3 | 19 | 116 |
| 4 | 21 | 175 |
| 5 | 27 | 382 |
| 6 | 26 | 323 |
| 7 | 30 | 466 |
| 8 | 26 | 280 |
| 9 | 21 | 197 |
| 10 | 25 | 354 |
| 11 | 22 | 347 |
| 12 | 30 | 395 |
| 13 | 31 | 445 |
| 14 | 23 | 369 |
| 15 | 1 | 2 |
| Total | 46 | 3,851 |

May

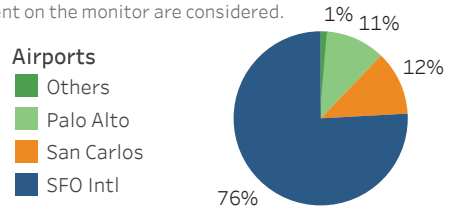
## 29%

of overflights registered a noise event.
(177 avg daily overflights of which 51 created a noise event).

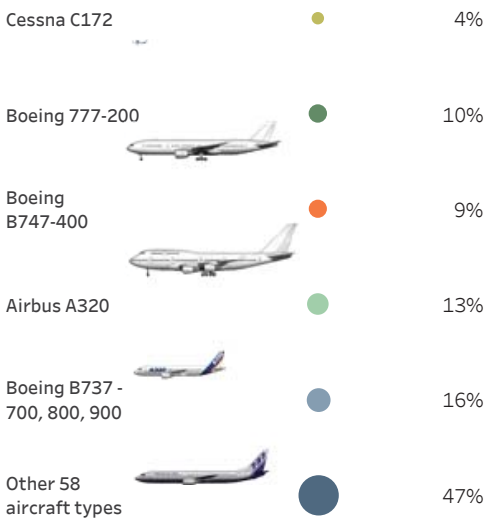
## SFO Arrivals Altitude

| 4000 ft | 5000 ft | 6000 ft | 7000ft |
|---|---|---|---|
| 18% | 46% | 27% | 9% |

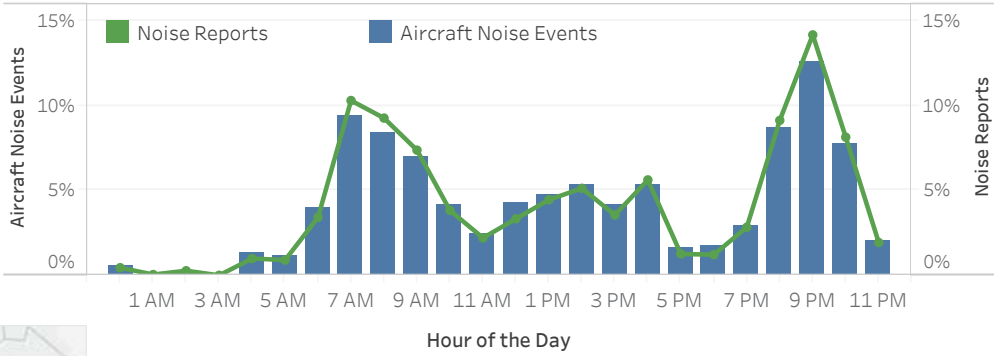
Only aircraft that registered a noise event on the monitor are considered.



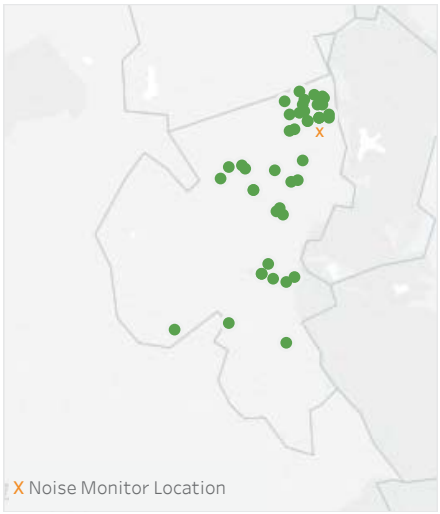

## Aircraft Type




## Noise Reports vs Noise Events




## Noise Reporters Map




## Noise Monitor on Location

# Portola Valley
# Aircraft Noise Monitoring

Prepared by San Francisco International Airport
Aircraft Noise Abatement Office

1st Quarter 2017

April 2017

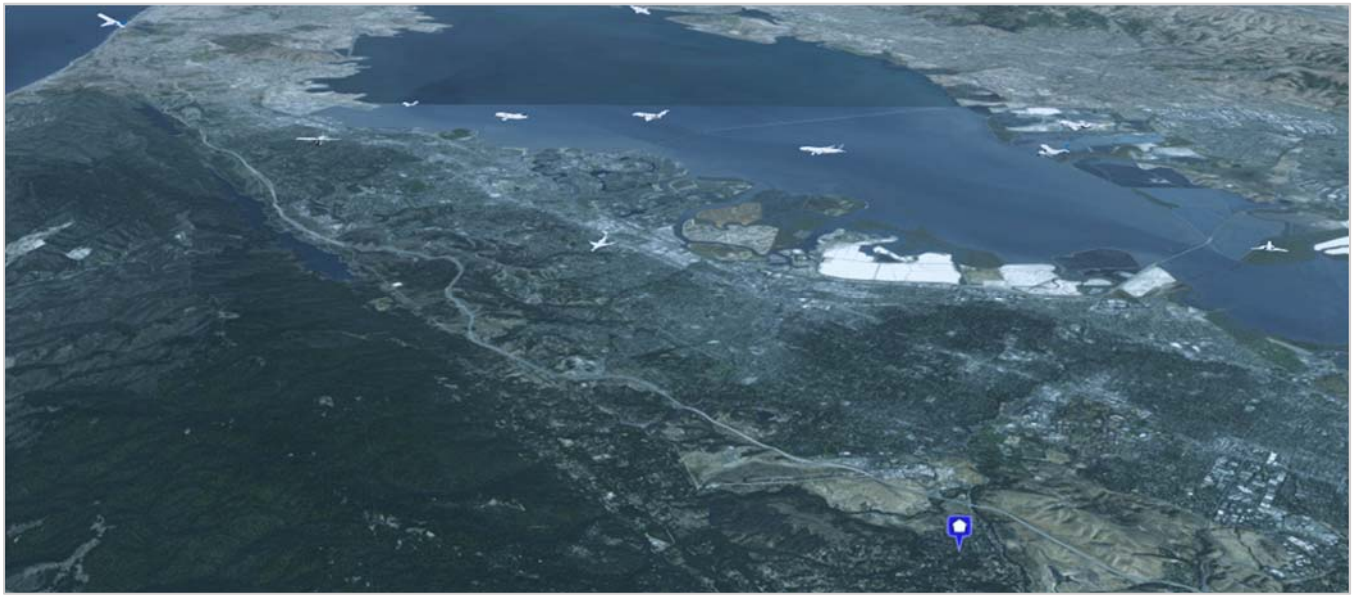
## Table of Contents

## Executive Summary

The San Francisco International Airport (SFO) Aircraft Noise Abatement Office conducted aircraft noise monitoring in Portola Valley to determine the noise level within the community from aircraft operations at SFO. The monitoring was made possible with the assistance of a Portola Valley resident, located in the northeastern part of Portola Valley. The overall average daily noise level from all aircraft was measured at 43dBA CNEL, the Community daily noise level was 46dBA CNEL. Noise from all aircraft over this location increased the total average daily noise level by 1.6dBA. SFO aircraft account for 69% of all aircraft noise events over the Portola Valley community.

## Community and SFO Operations

Aircraft destined to SFO typically overfly Portola Valley during high traffic conditions or inclement weather days with aircraft vectoring. Also known as delay vectoring, is when an FAA (Federal Aviation Administration) Air Traffic Controller instructs the pilot to fly specific headings. The headings are not the most direct path to the runways. Reasons why aircraft may be vectored include: adjusting the arrival sequence in order to maintain safe separation between all aircraft, maximizing use of available airspace, achieving an expeditious flow of aircraft traffic, avoiding areas of known hazardous weather or known severe turbulence, and maneuvering an aircraft into a suitable position to accommodate a visual approach and landing. During the monitoring period there were wind/weather impacts that required use of reverse flow at SFO (Southeast Flow- Appendix 1). The report addresses the consequences of the reverse flow. Non aircraft noise sources include rain and wind. The ambient noise in Portola Valley during the monitoring period was 43 decibels.



## Equipment

Portola Valley aircraft noise monitoring is conducted every quarter, typically for a 14-day measurement period. The measurement period is performed during the same time period each quarter. This provides a sufficient data sample to evaluate the overall noise climate similar to a permanent noise monitor site installation. The equipment used to measure the sound level was an Environmental Monitor Unit 2200 noise monitor and Type 41DM-2 microphone manufactured by Bruel & Kjaer. The measurements consisted of monitoring the A-weighted decibels (dBA) in accordance with procedures and equipment which comply with International Electrotechnical Commission and measurement standards established by the American National Standards Institute for Type I instrumentation. The microphone was calibrated prior to the start of the measurement. The monitor was housed in a weatherproof case and powered by two external battery packs. The microphone was mounted on a tripod at a height of 7 feet (see Figure 2). The sound levels at the site were continuously monitored, stored on the onboard memory and transferred to a removable memory stick for decoding. The decoded noise data was then processed in the Airport Noise and Operations Management System (ANOMS) for identification, noise to flight track matching and Community Noise Equivalent Level (CNEL) noise metric calculations.

## Aircraft Noise Analysis

Noise measurements were performed in the northeastern part of Portola Valley during the first quarter 2017. Monitoring was analyzed from February 1st through the 4th and February 8th thought 14th. Quarterly monitoring period typically consists of 14 full 24 hour days; in this report we have only 11 complete days due to the limited power supply. The noise monitor measures noise at the pre-defined sound level threshold of 55dBA (day) and 50dBA (night). This means that not every aircraft passing over Portola Valley creates a noise event. During the monitoring period a total of 754 noise events were recorded. There were 590 (78%) aircraft noise events of which 405 (54%) were correlated to SFO operations (SFO Events) and 185 (25%) correlated to other Bay Area airports (Non-SFO Events). The average aircraft generated Maximum Noise Level (Lmax) was 61dBA, the average Sound Exposure Level (SEL) was 71dBA, and the average aircraft noise event duration was 21 seconds. The event counts (SFO Events, Non SFO Events and Community) in Table 1 are presented as daily values. SFO event counts colored green from February 3rd to 10th are high due to delay vectoring as a result of inclement weather and flight delays.

**Table 1 - Noise Event Averages by Yearly Quarter**

| Date | SFO Events[1] | SEL (dBA)[2] | Lmax(dBA)[3] | Non- SFO Event | SEL (dBA) | Lmax (dBA) | Community | SEL (dBA) | Lmax (dBA) |
|---|---|---|---|---|---|---|---|---|---|
| **2-1** | 31 | 69 | 59 | 10 | 71 | 62 | 9 | 66 | 57 |
| **2-2** | 15 | 76 | 66 | 5 | 71 | 21 | 8 | 74 | 62 |
| **2-3** | **46** | 70 | 61 | 10 | 70 | 21 | 84 | 66 | 56 |
| **2-4** | **43** | 70 | 60 | 14 | 72 | 63 | - | - | - |
| **2-8** | **61** | 68 | 59 | 9 | 67 | 58 | - | - | - |
| **2-9** | **46** | 71 | 61 | 18 | 69 | 59 | 48 | 68 | 60 |
| **2-10** | **56** | 71 | 61 | 12 | 72 | 60 | 5 | 74 | 64 |
| **2-11** | 43 | 72 | 61 | 45 | 73 | 64 | 4 | 68 | 63 |
| **2-12** | 23 | 67 | 57 | 34 | 72 | 64 | 4 | 63 | 59 |
| **2-13** | 19 | 68 | 58 | 7 | 74 | 64 | - | - | - |
| **2-14** | 22 | 71 | 59 | 21 | 72 | 63 | 1 | 58 | 51 |
| **AVG** | **37** | **70** | **60** | **17** | **71** | **62** | **8** | **67** | **59** |

*[1] SFO Events are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft. Counts are presented as Daily average of the monitoring period.*
*[2] SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and its energy is compressed into one second.*
*[3] Lmax - The maximum noise level is a measurement of the peak level of a noise event.*

**Table 2 – SEL Comparison of Quarterly Averages**

Table 2 shows a graphic comparison between the SEL of SFO Events and SEL of Community Events. For example, on February 2nd SFO aircraft events were on average 2dBA louder than the Community Events. While SFO Events were louder the ratio between the average amount of SFO Events (15) and Community Events (8) also varied (See Table 1).

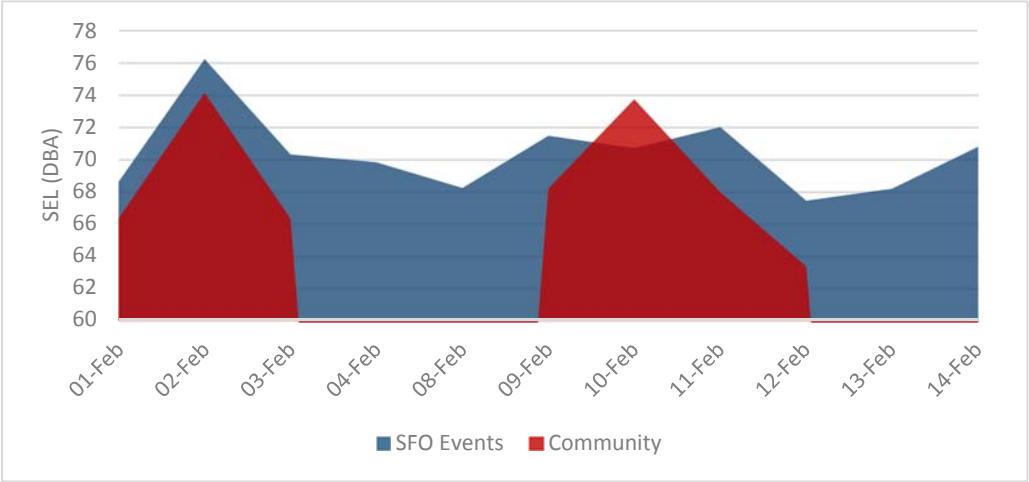


**Table 3– Average SFO Noise Events by Hour of the Day**

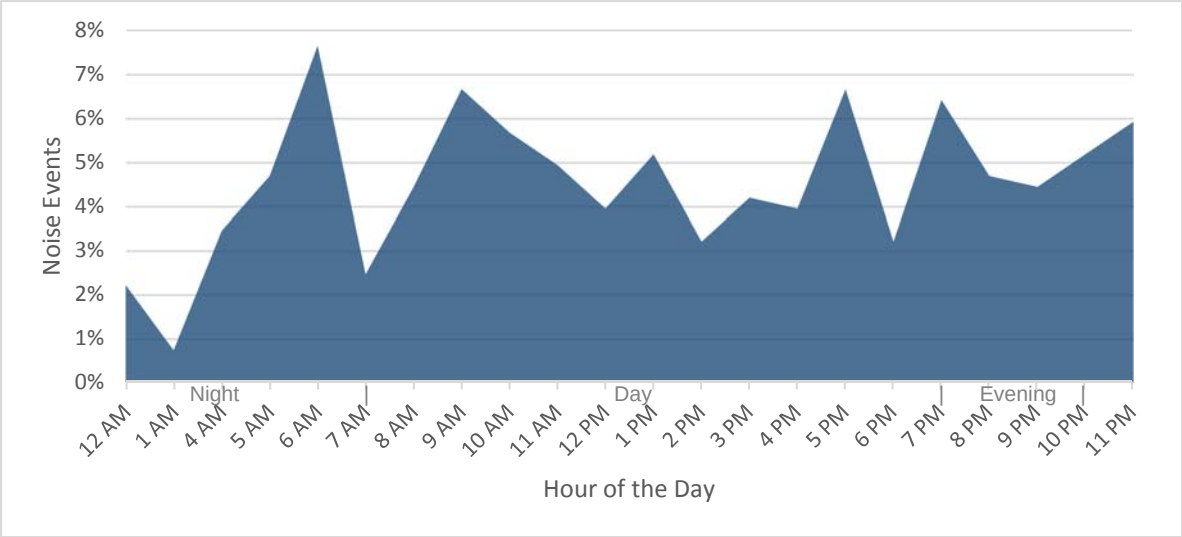
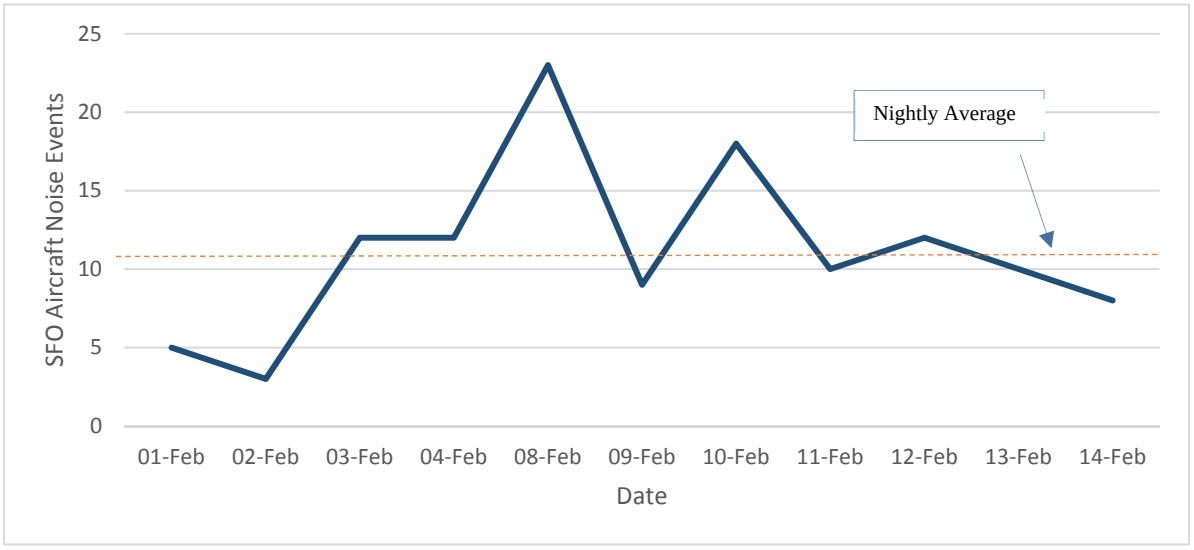



**Table 4 – SFO Events by Daytime, Evening and Nighttime hours**

| SFO Aircraft Noise Data (Single Noise Events) | | | Lowest (dBA) | Highest (dBA) | Average (dBA) |
|---|---|---|---|---|---|
| **Day (7:00 am- 7:00 pm)** | 221 events **55 %** | LMax | 55 | 73 | 60 |
| | | SEL | 61 | 82 | 69 |
| | | Duration | 5 sec | 57 sec | 19 sec |
| **Evening (7:00 pm- 10:00 pm)** | 63 events **16 %** | LMax | 55 | 70 | 60 |
| | | SEL | 60 | 80 | 69 |
| | | Duration | 5 sec | 47 sec | 12 sec |
| **Night (10:00 pm- 7:00 am)** | 121 events **30 %** | LMax | 50 | 63 | 56 |
| | | SEL | 57 | 76 | 66 |
| | | Duration | 5 | 53 | 24 |

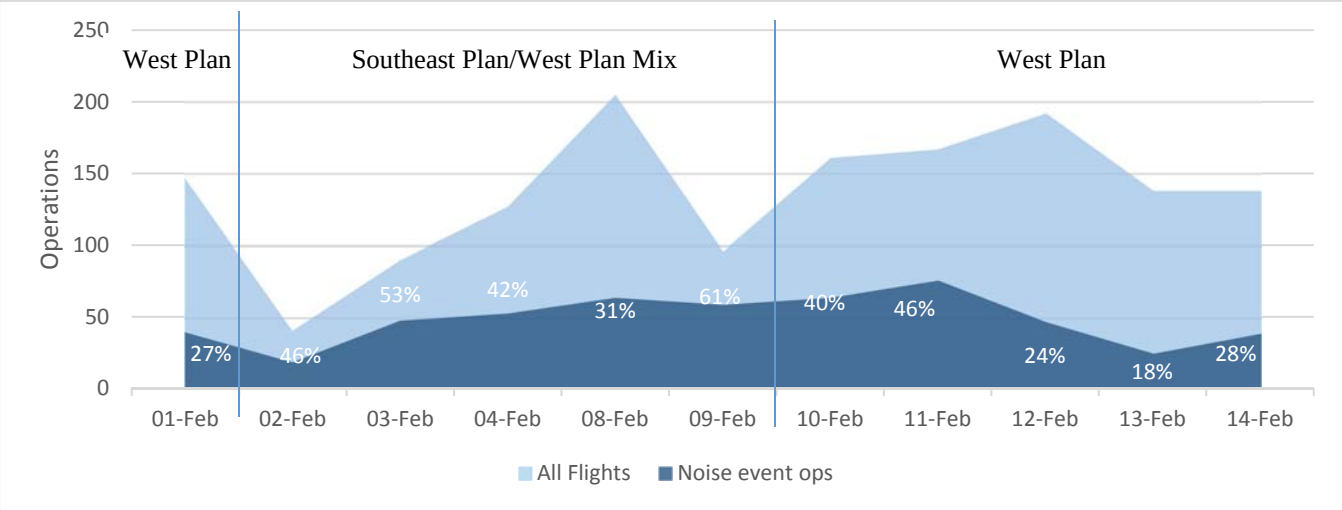
**Table 5 – Average SFO Daily Nighttime Noise Events 10:00 PM – 7:00 AM**



## Aircraft Operations

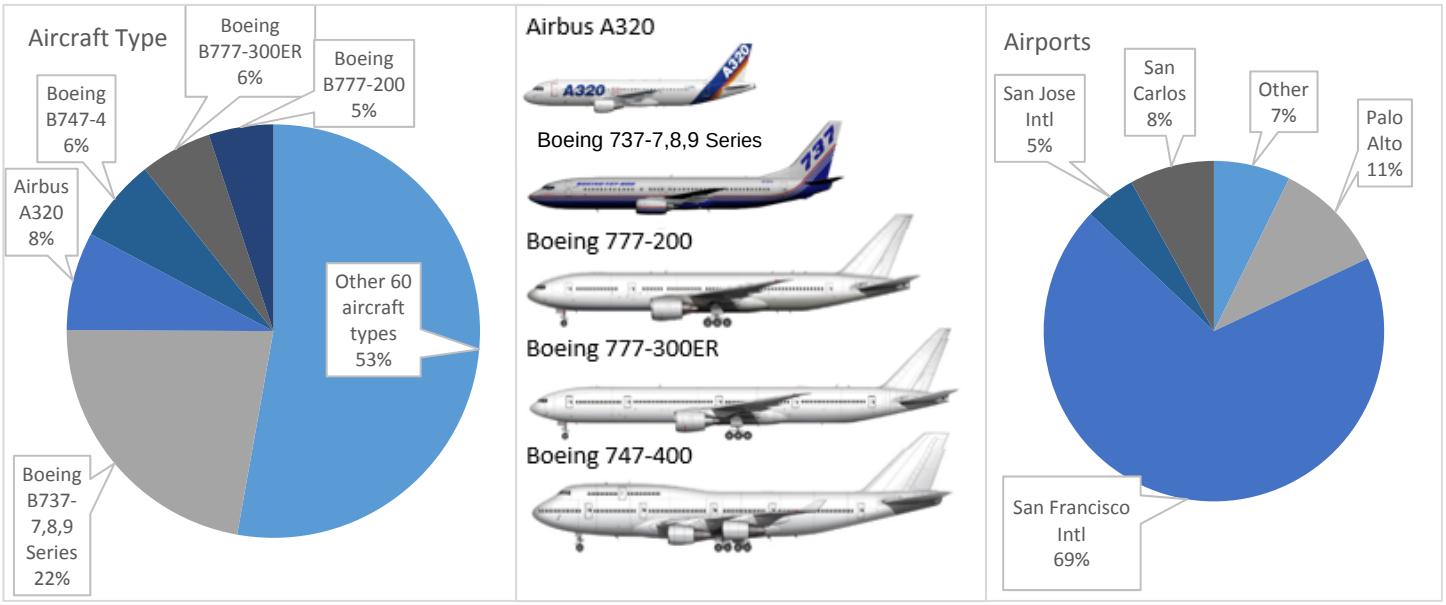
All aircraft which flew within a cylindrical airspace of 2 miles in radius and 15,000 feet in height, known as Point of Closest Approach (PCA); centered on the measurement location were evaluated for this measurement period. A daily average of 137 flights penetrated this airspace. An average of 38% of flights exceeded the threshold used to detect aircraft noise and registered events on the noise monitor. Appendix 3 lists these aircraft by type.

**Table 6- All Operations vs. Aircraft Noise Events (%)**




Correlated aircraft noise events were studied based on the aircraft type, airport origin, and operation type. SFO air traffic represented 69% of all correlated aircraft noise events, followed by Palo Alto (11%), San Carlos (8%) and San Jose International Airport (5%). Moreover, 68% of traffic were arrivals, 28% were departures and 4% were overflights. 65 different aircraft types (Appendix 3- Aircraft Type Reference Sheet) were tracked; top 5 aircraft types represent almost half of all traffic over Portola Valley.

**Table 7 – All Aircraft Operations**

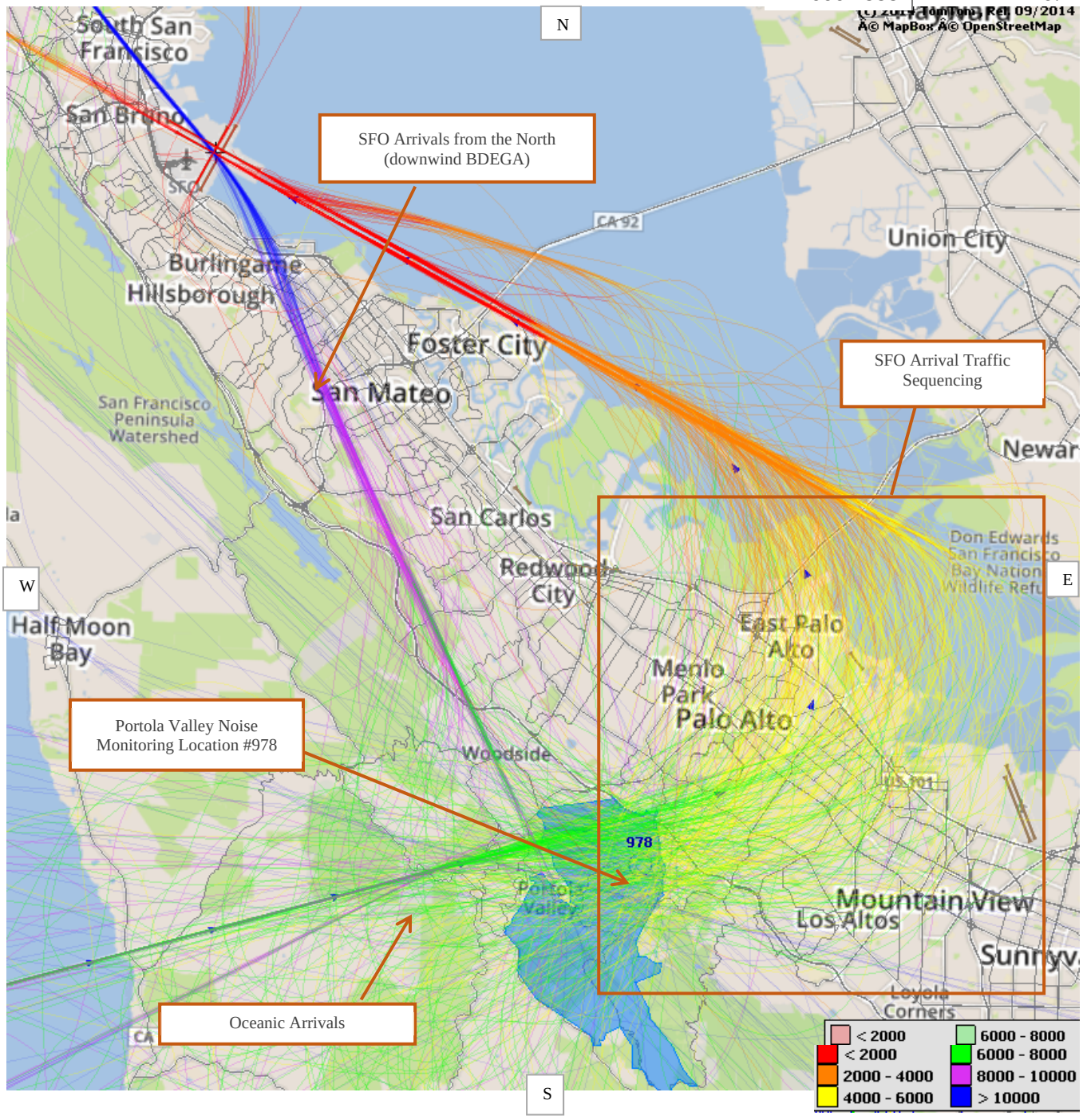


## SFO Aircraft Noise Event Flights Altitude

The image below shows only SFO tracks that created a noise event during the monitoring period. Color depicts altitude of the flights in 1000-foot grouping. 60% of SFO aircraft that created a noise event overflew Portola Valley community at 5,000 to 7,000 feet range of altitude, while only 16% were in the 4,000 to 5,000 feet range (see Table 8).

**Table 8 – SFO Aircraft Altitude**

| Altitude (ft) | |
|---|---|
| 4000-4999 | 16% |
| 5000-5999 | 34% |
| 6000-6999 | 25% |
| 7000-7999 | 6% |



## Noise Reporters

Analysis of noise reports includes all Portola Valley noise reporters and reports during the full monitoring days (Table 9). On average day each of the 20 people reported 11 flights. On February 8th, a day with the most amount of overflights there was only one reporter which submitted 3 noise reports. Nighttime reports between 10:00 PM and 7:00 AM account for 21% of all submitted noise reports. Table 10 depicts percentage of aircraft noise events and noise reports by hour of the day. During the evening hours there is noticeable spike of noise reports disproportionate with aircraft noise events. All things considered, it seems reasonable to assume that the evening hours are most disturbing to noise reporters.

**Table 9- Noise Reporters**

| February 2017 | Noise Reporters | Noise Reports |
|---|---|---|
| 1 | 22 | 242 |
| 2 | 27 | 86 |
| 3 | 23 | 182 |
| 4 | 24 | 365 |
| 8 | 1 | 3 |
| 9 | 16 | 215 |
| 10 | 32 | 265 |
| 11 | 28 | 342 |
| 12 | 21 | 222 |
| 13 | 16 | 143 |
| 14 | 15 | 247 |
| **Average** | **20** | **210** |

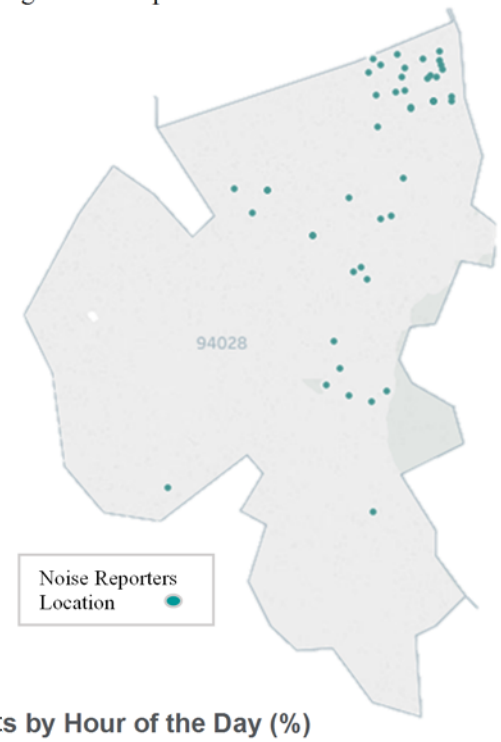
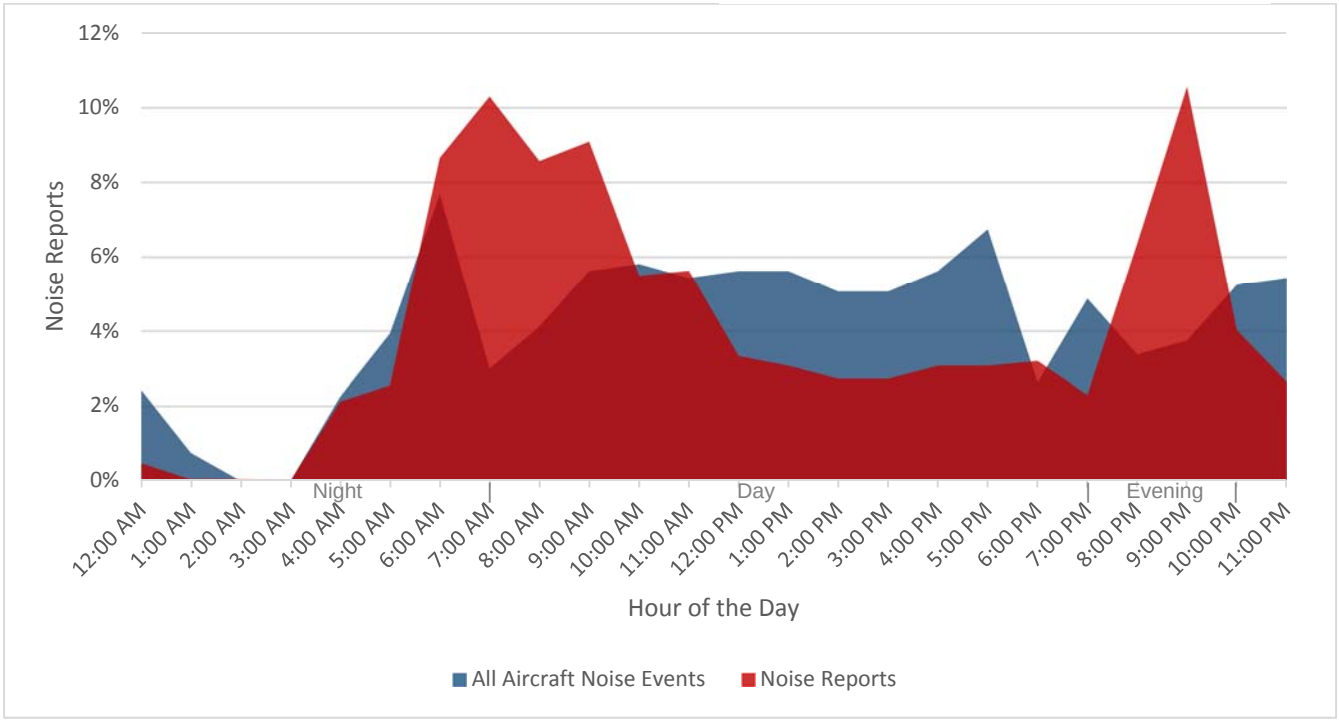



**Table 10 –Average Noise Reports by Hour of the Day (%)**



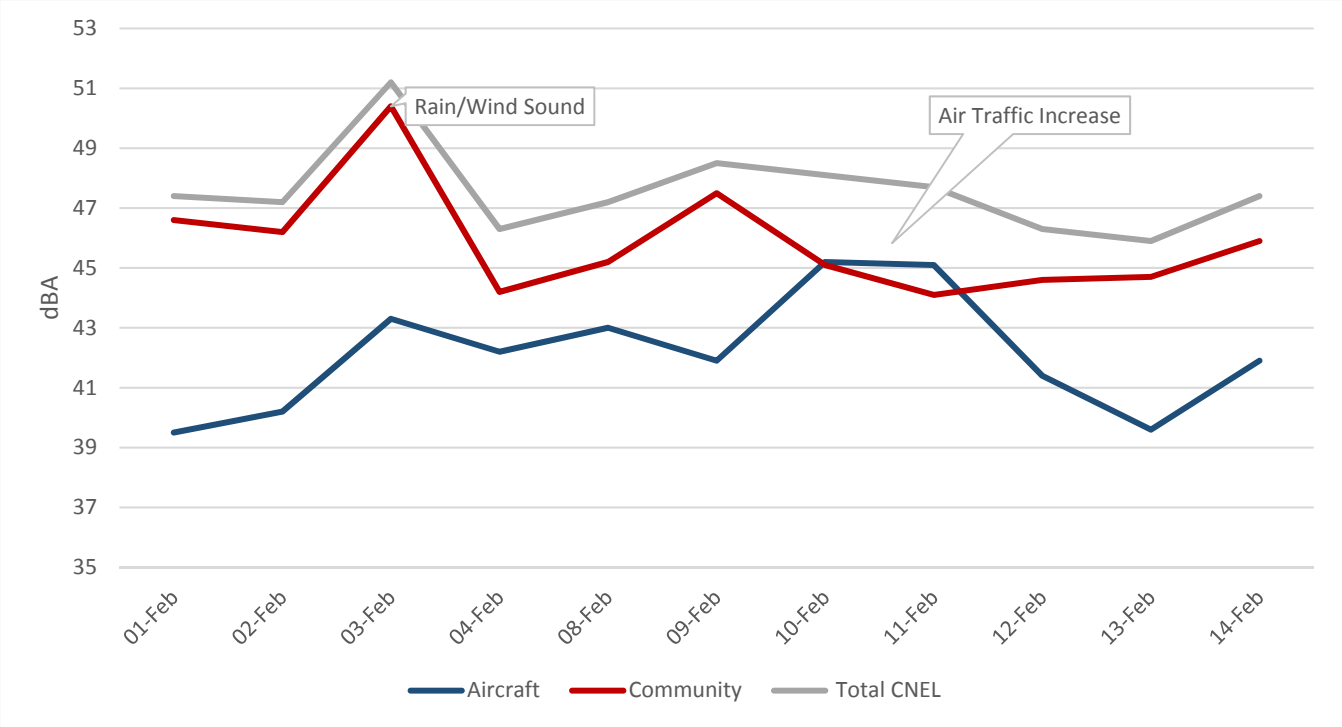
## Conclusion

Aircraft noise levels were measured in Portola Valley, a quiet suburban community approximately 16 miles away from SFO. Flights above Portola Valley consist of arrival traffic to the Bay Area airports, SFO accounts for more than half of those flights. During this Quarter community saw increase of flights due to aircraft vectoring as a consequence of inclement weather conditions and flight delays.

The computed level for the average **Aircraft CNEL** was 43dBA, and the average **Community CNEL** was 46dBA. Overall aircraft noise measurements contribute 1.6dBA additional noise to the total cumulative average noise level of 48dBA CNEL. Air traffic is seasonal so it is important to compare the same yearly quarters. Comparing 1st Quarter 2017 CNEL values to 1st Quarters 2015 and 2016 aircraft CNEL has increased by 5dBA and 4dBA respectively and is 2dBA above 2-year average. On an average day there were 10 additional SFO aircraft events during 1st Quarter 2017. Single event (70dB) and LMax (60dB) values are consistent with the 2-year average.

Portola Valley aircraft noise monitoring threshold is set at a monitor minimum level of 50dB. In view of the fact that the monitoring location in Portola Valley is located in a quiet suburban community with ambient noise in the low 50s, consequently any aircraft noise above this threshold may become a nuisance for the residents.

**Table 11 –CNEL**




The California Code of Federal Regulations, Title 21, Division 2.5, Chapter 6, paragraph 5012 states, “The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels.” Since the average Aircraft CNEL was measured at 43dBA for Portola Valley, this residential area has an acceptable level of aircraft noise as defined by state law. The extent of the 65dBA CNEL noise impact contour at SFO is shown in Appendix 3. This noise contour was generated using Federal Aviation Administration’s Integrated Noise Model (version 7.0d). The Federal Aviation Administration accepted this map as part of the Noise Exposure Map update under Federal Aviation Regulations Part 150 on January 29, 2016. The results of the field monitoring validate the extent of the 65dBA CNEL noise impact boundary confirming Aircraft CNEL is less than 65dBA CNEL for this location.

Figure 1 - Monitoring Location #978 and Portola Valley (blue zone)

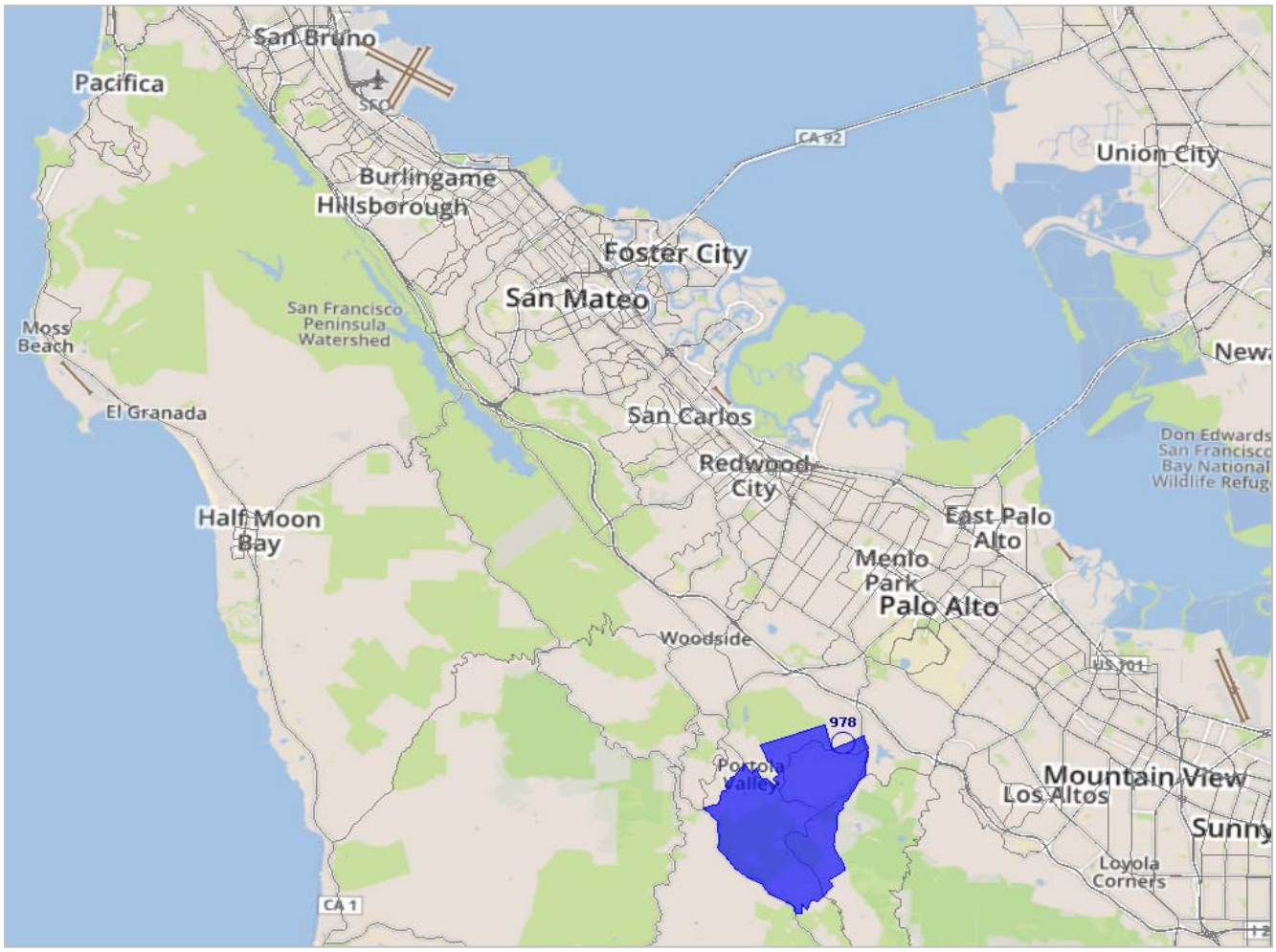



Figure 2 – Microphone, Tripod and Monitor at Portola Valley

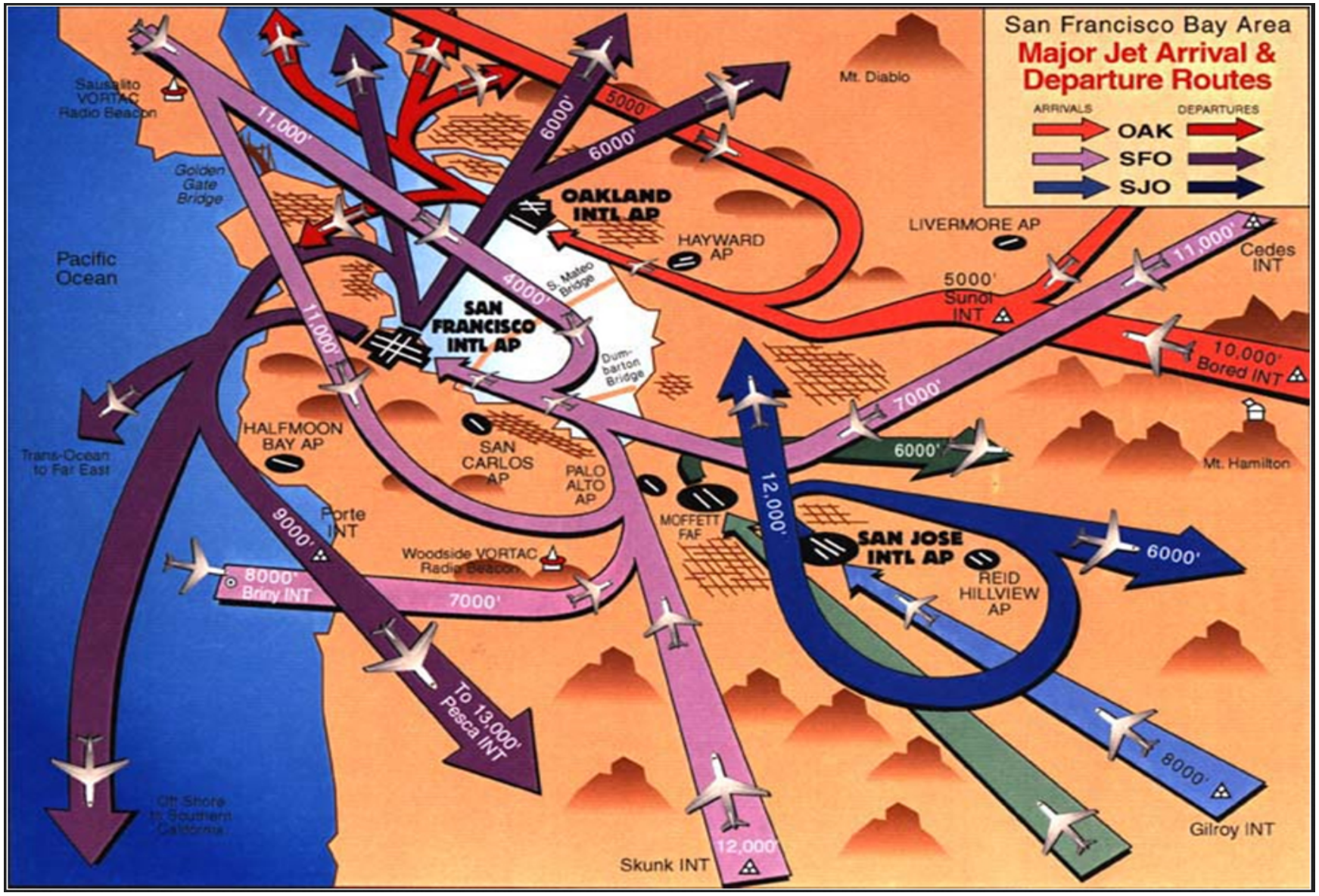
Figure 3 – Portola Valley Portable Noise Monitoring Comparison Table

| | Yearly Quarters | Aircraft CNEL (dBA) | Community CNEL (dBA) | Total CNEL (dBA) | SFO Aircraft Events[1] | SEL (dBA) | Lmax (dBA) |
|---|---|---|---|---|---|---|---|
| 2015 | Qtr1 | 38 | 49 | 49 | 24 | 70 | 59 |
| | Qtr2 | 42 | 44 | 46 | 55 | 69 | 59 |
| | Qtr3 | 41 | 51 | 52 | 44 | 69 | 58 |
| | Qtr4 | 41 | 46 | 47 | 41 | 70 | 60 |
| 2016 | Qtr1 | 39 | 43 | 45 | 28 | 69 | 58 |
| | Qtr2 | 41 | 44 | 46 | 47 | 70 | 59 |
| | Qtr3 | 40 | 73 | 73 | 23 | 70 | 59 |
| | Qtr4 | 40 | 47 | 48 | 28 | 70 | 60 |
| 2017 | Qtr1 | 43 | 46 | 48 | 37 | 70 | 60 |
| **Average** | | **41** | **49** | **50** | **36** | **70** | **59** |

[1] Quarterly Daily Average

## Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

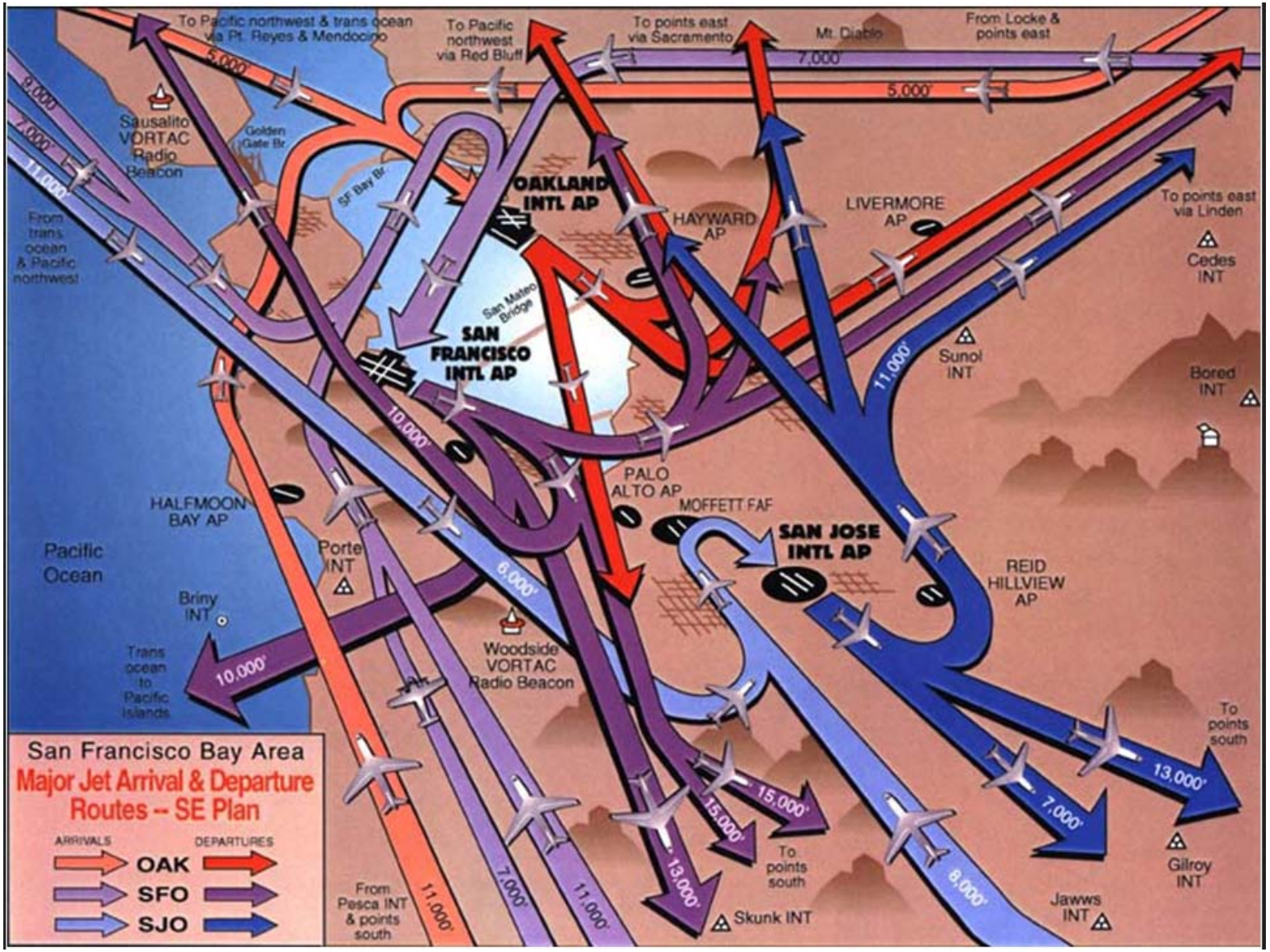
**West Flow Plan**




Note: Image not to scale and not all flights paths are shown.

**Appendix 1- San Francisco Bay Area Major Jet Arrival and Departure Routes**

**Southeast Flow Plan**



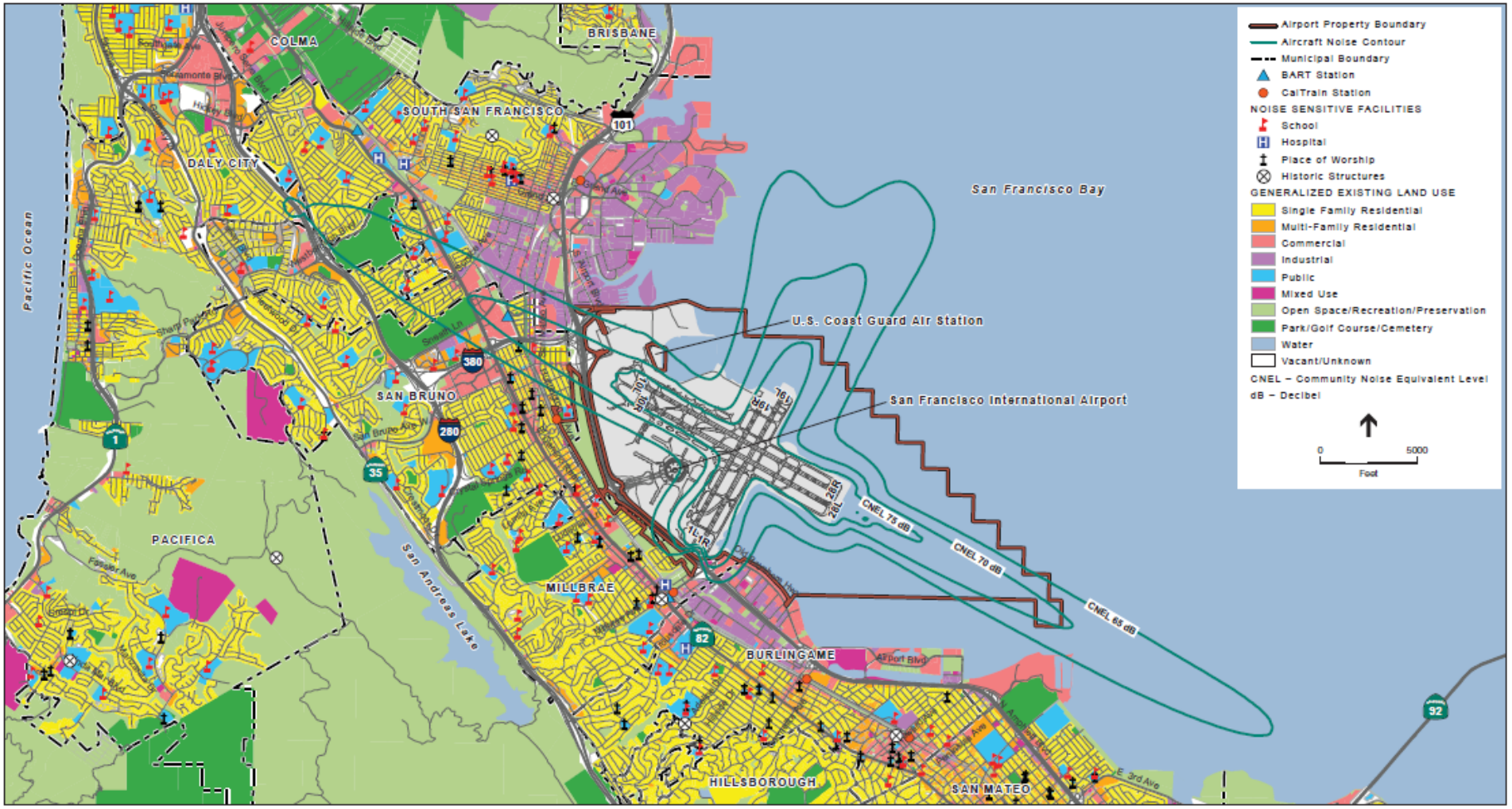

*Note: Image not to scale and not all flight paths are shown.*

## Appendix 2 – Aircraft Type Reference Sheet

| Aircraft Code | Description |
|---|---|
| **Wide Body Jet** | |
| **A332** | Airbus A330-200 |
| **A333** | Airbus A330-300 |
| **A343** | Airbus A340-300 |
| **A346** | Airbus A340-600 |
| **A359** | Airbus A350-900 |
| **A388** | Airbus A380-800 |
| **B744** | Boeing 747-400 |
| **B748** | Boeing 747-8 |
| **B762** | Boeing 767-200 |
| **B763** | Boeing 767-300 |
| **B772** | Boeing 777-200 |
| **B77L** | Boeing 777-200LR |
| **B77W** | Boeing 777-300ER |
| **B788** | Boeing 787-8 |
| **B789** | Boeing 787-9 |
| **Narrow Body Jet** | |
| **A319** | Airbus A319 |
| **A321** | Airbus A321 |
| **B733** | Boeing 737-300 |
| **B734** | Boeing 737-400 |
| **B737** | Boeing 737-700 |
| **B738** | Boeing 737-800 |
| **B739** | Boeing 737-900 |
| **B752** | Boeing 757-200 |
| **B753** | Boeing 757-300 |
| **CRJ2** | Bombardier CRJ200 |
| **CRJ7** | Bombardier CRJ700 |
| **CRJ9** | Bombardier CRJ-900 |
| **DH8D** | DeHavilland Dash 8 |
| **E170** | Embraer EMB 170 |
| **Helicopter** | |
| **CH7** | Kompress |
| **EC35** | Eurocopter 135 |
| **EC45** | Eurocopter 145 |
| **EH1** | AgustaWestland 101 |
| **HELO** | Helicopter |
| **General Aviation Aircraft** | |
| **BE33** | Beechcraft Debonair |
| **BE36** | Beechcraft 36 Bonanza |
| **BE58** | Beechcraft 58 |
| **BE65** | Beechcraft 65 |
| **C162** | Cessna C162 |
| **C172** | Cessna Skyhawk |
| **C182** | Cessna Skylane |
| **DA40** | Diamond DA-40 |
| **DA42** | Diamond DA-42 |
| **LNC4** | Lancair 4 |
| **M20P** | Mooney M-20 |
| **P28A** | Piper 28A Cherokee |
| **RV8** | Vans RV-8 |
| **SR20** | Cirrus SR-20 |
| **SR22** | Cirrus SR-22 |
| **Business Aircraft** | |
| **BE9L** | Beechcraft King Air |
| **BE20** | Beechcraft 200 King Air |
| **C25B** | Cessna Citation CJ3 |
| **C680** | Cessna 680 Citation Sovereign |
| **C750** | Cessna 750 Citation X |
| **CL30** | Bombardier Challenger 300 |
| **GL5T** | Bombardier Global Express |
| **GLEX** | Bombardier Global Express (twin-jet) |
| **MU2** | Mitsubishi MU-2 |
| **PC12** | Pilatus PC-12 |
| **TBM7** | Socata TBM 700 |

**Wide Body Jet** (wide enough for two passenger aisles); **Narrow Body Jet** (wide enough for one passenger aisles); **Business Aircraft** (transportation for small groups of people); **General Aviation Aircraft** (Generally small, propeller-driven aircraft); **Helicopters** (Aircraft operated by rotor blades); **Military** (U.S Military Aircraft).

## Appendix 3 – 2014 Noise Exposure Map




SOURCE: ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

SFO FAR Part 150 Noise Exposure Map Report . 120832

**Exhibit 5-1**
2014 Noise Exposure Map – San Francisco International Airport

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## Dave Ong (AIR)

**From:** Dave Ong (AIR)
**Sent:** Wednesday, July 19, 2017 2:20 PM
**To:** 'dcgordon@me.com'
**Cc:** Bert Ganoung (AIR); 'James A Castañeda'
**Subject:** 2Q2017 Aircraft Noise Monitoring Results for Woodside VOR
**Attachments:** Woodside Aircraft Noise Monitoring 1Q 2017.pdf; Woodside Noise Monitoring 2Q 2017 Datasheet.pdf

Dear Honorable Deborah Gordon,

In an effort to provide noise monitoring results more quickly and efficiently, our office has produced a new 2-page "datasheet" of the results. All the information from the lengthy 15 page report are now available in this easy to read datasheet. The main benefits of providing information in this format are (1) one can readily locate the information set that is most important to them without scouring through numerous pages and (2) easily compare different datasheets to determine any trends.

I have attached the previous quarter's report along with this recent measurement (May 3-16) results in the datasheet format. Please provide feedback and let me know if this new format is better or if you prefer the previous format.

Thank you,

David

**David Ong**
Noise Systems Manager | Planning, Design & Construction
San Francisco International Airport | P.O. Box 8097 | San Francisco, CA 94128
Tel 650-821-5100 | flysfo.com

Facebook | Twitter | YouTube | Instagram | LinkedIn

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Short Term Noise Monitoring Report

# Woodside 2Q 2017

May 10 - 23

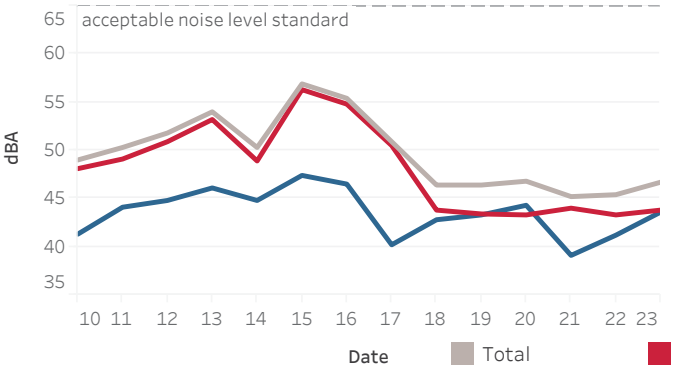
Aircraft CNEL: 44dBA
Community CNEL: 50dBA
Total CNEL: 51 dBA
SEL: 72dBA
LMax: 62dBA
Ambient Noise: 43dBA
Noise Monitor Treshold: 52dBA (Day), 50dBA(Night)
SFO Aircraft Noise Events: 58 per day
SFO Operations Flow: West Flow (all days)
Cause of Aircraft overflights over Woodside:
SFO Oceanic Arrival Route, Delay Vectoring, General Aviation- Small Aircraft

## Daily Noise Event Averages

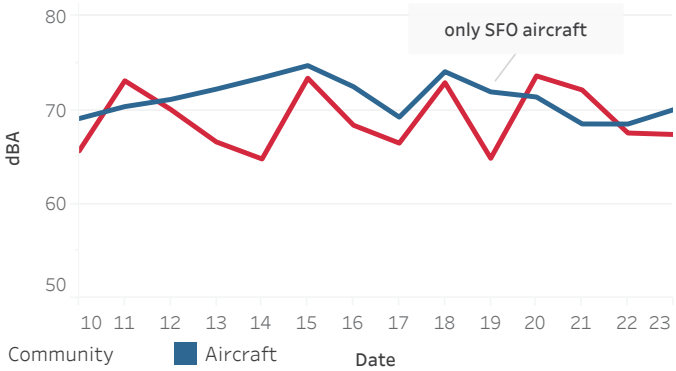
| | Date | SFO Noise Events | SFO Avg. SEL (dBA) | SFO Avg. Lmax (dBA) | Non-SFO Noise Events | Non-SFO Avg. SEL (dBA) | Non-SFO Avg. Lmax (dBA) | Community Noise Events | Community Avg. SEL (dBA) | Community Avg. Lmax (dBA) |
|---|---|---|---|---|---|---|---|---|---|---|
| May | 10 | 55 | 69 | 59 | 34 | 71 | 62 | 14 | 66 | 58 |
| | 11 | 103 | 70 | 60 | 22 | 72 | 62 | 58 | 73 | 62 |
| | 12 | 71 | 71 | 61 | 39 | 72 | 63 | 630 | 70 | 58 |
| | 13 | 96 | 72 | 62 | 29 | 71 | 62 | 504 | 67 | 56 |
| | 14 | 50 | 73 | 64 | 32 | 70 | 60 | 88 | 65 | 54 |
| | 15 | 89 | 75 | 62 | 39 | 74 | 62 | 968 | 73 | 60 |
| | 16 | 140 | 73 | 62 | 34 | 71 | 62 | 594 | 68 | 56 |
| | 17 | 19 | 69 | 59 | 24 | 72 | 63 | 190 | 67 | 56 |
| | 18 | 26 | 74 | 66 | 26 | 73 | 64 | 22 | 73 | 59 |
| | 19 | 44 | 72 | 62 | 37 | 72 | 62 | 36 | 65 | 54 |
| | 20 | 35 | 71 | 61 | 27 | 73 | 64 | 20 | 74 | 65 |
| | 21 | 23 | 69 | 60 | 20 | 73 | 64 | 16 | 72 | 63 |
| | 22 | 28 | 69 | 58 | 24 | 72 | 63 | 12 | 68 | 60 |
| | 23 | 39 | 70 | 59 | 22 | 73 | 64 | 14 | 67 | 59 |
| Daily Average | | **58** | **71** | **61** | **29** | **72** | **63** | **226** | **69** | **59** |

**SFO Events** are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft.
**SEL** - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and its energy is compressed into one second.
**Lmax** - The maximum noise level is a measurement of the peak level of a noise event.
**CNEL-** This metric is used to assess and regulate aircraft noise exposure in communities surrounding the airport. California Title 21 Noise Regulations established acceptable level of aircraft noise of 65dBA CNEL.

### Community Noise Exposure Level (CNEL)



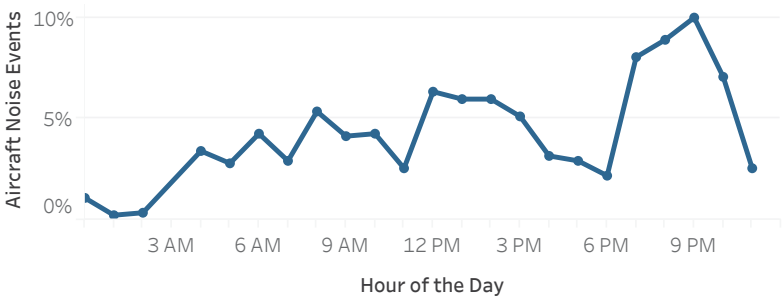

### Sound Exposure Level (SEL) Comparison




## SFO Aircraft Noise Events by Day (7am-7pm), Evening (7pm-10pm) and Night (10pm-7am)

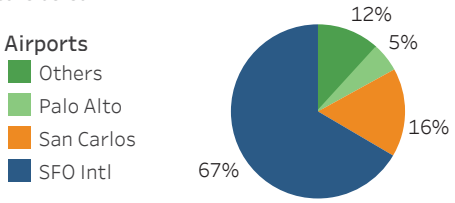
| | Noise Events | SFO Noise Events (%) | Avg. SEL (dBA) | Min. SEL (dBA) | Max. SEL (dBA) | Avg. Lmax (dBA) | Min. LMax (dBA) | Max. LMax (dBA) | Avg. Duration (sec) | Min. Duration (sec) | Max. Duration (sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | 418 | 51% | 72 | 59 | 82 | 62 | 53 | 73 | 26 | 5 | 60 |
| Evening | 221 | 27% | 73 | 60 | 81 | 63 | 53 | 74 | 32 | 6 | 60 |
| Night | 179 | 22% | 70 | 59 | 79 | 59 | 50 | 67 | 31 | 8 | 60 |

## SFO Noise Events by Hour of the Day

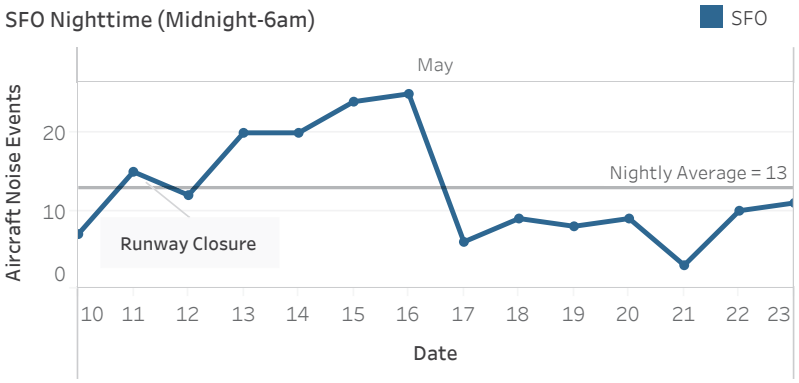



| | Arrivals | | | | Departures |
|---|---|---|---|---|---|
| | 5,000 ft | 6,000 ft | 7,000ft | <8,000 ft | 10,000 ft |
| SFO | 27% | 22% | 28% | 15% | 7% |

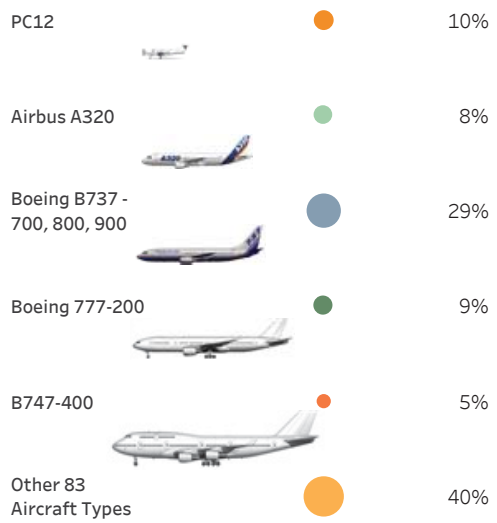
Only aircraft that registered a noise event on the monitor are considered.




## SFO Nighttime (Midnight-6am)




## Aircraft Type



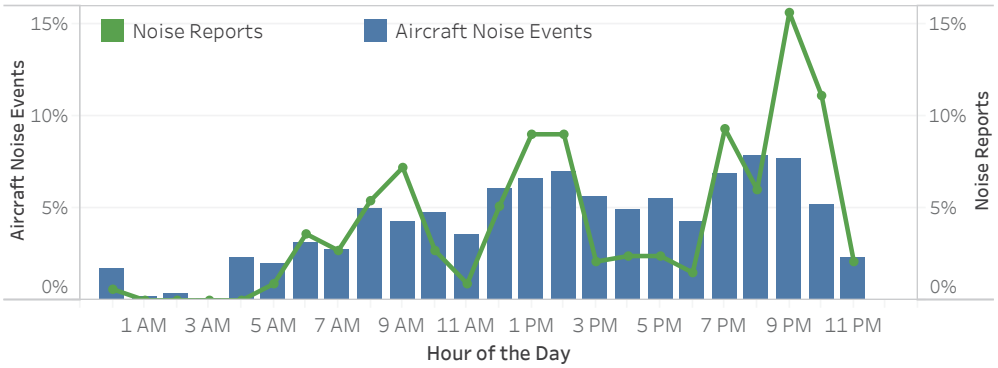

## Noise Reporters

| | Noise Reporter | Noise Reports |
|---|---|---|
| 10 | 5 | 24 |
| 11 | 11 | 52 |
| 12 | 7 | 32 |
| 13 | 8 | 45 |
| 14 | 8 | 35 |
| 15 | 9 | 75 |
| 16 | 11 | 119 |
| 17 | 6 | 25 |
| 18 | 8 | 19 |
| 19 | 9 | 49 |
| 20 | 7 | 20 |
| 21 | 7 | 22 |
| 22 | 5 | 20 |
| 23 | 9 | 60 |
| May | | |
| Total | 17 | 597 |

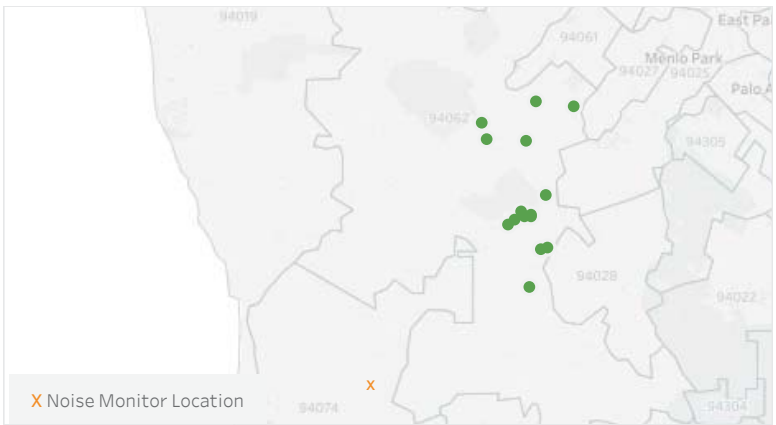
**39%**

of overflights registered a noise event.
(187 avg daily overflights of which 72 created a noise event).

## Noise Reports vs Noise Events




## Noise Reporters Map




## Noise Monitor on Location

# Woodside
# Aircraft Noise Monitoring

Prepared by San Francisco International Airport
Aircraft Noise Abatement Office
Technical Report #042017-969

## 1st Quarter 2017

April 2017

## Table of Contents

## Executive Summary

The San Francisco International Airport (SFO) Aircraft Noise Abatement Office conducted aircraft noise monitoring in Woodside to determine the noise level within the community from aircraft operations at SFO. The monitoring location is at an airway facility that provides a fixed ground navigational aid used that commercial and general aviation pilots use to guide their aircraft. The monitoring was made possible with the assistance of the Federal Aviation Administration (FAA). The overall average daily noise level from all aircraft was 49dBA CNEL. The Community daily noise level was 64dBA CNEL. Noise from all aircraft over this location increased the total average daily noise level by 0.5dBA. SFO aircraft attributed 61% of all aircraft noise events over Woodside community.

## Community and SFO Operations

Oceanic Arrivals destined to SFO and Oakland Intl Airport (OAK) typically fly over Woodside community with flight traffic crossing over a fixed ground radio beacon known as a VHF Omni Directional Radio Range (VOR). The Woodside VOR is located 1 mile west of Highway 84 off of Skyline Boulevard. Aircraft track to the Woodside VOR navigational aid which guide airplanes through the National Airspace System (NAS). VOR stations are gradually being decommissioned by the FAA as they incorporate more satellite based navigation procedures in the NAS.

Advances in Global Positioning Systems allows newer aircraft equipped with latest guidance and navigation technologies to fly Oceanic Tailored Arrivals (OTA). This arrival procedure allows an aircraft to fly a continuous decent from cruise altitude to touching down on the runway. Versus a conventional arrival procedure which requires an aircraft to descend, fly at a leveled altitude, then descend again in a stair-step fashion which can lead to increased use of the engine throttle over noise-sensitive areas. The OTA procedure is typically used during early morning hours when there is less traffic. OTA allows aircraft arriving from the west, over the Pacific Ocean to fly a constant rate of decent, and track the Woodside VOR to the runway. This procedure is quieter, produces less emission as less fuel is burned and increases air traffic efficiency.

In high traffic conditions or inclement weather days, Woodside community may experience more air traffic due to aircraft vectoring (FAA Air Traffic Controller instructs the pilot to fly specific headings), also known as delay vectoring. The headings are not the most direct path to the runways. Reasons why aircraft may be vectored include: adjusting the arrival sequence in order to maintain safe separation between aircraft (and aircraft of different size), maximizing use of available airspace, achieving an expeditious flow of aircraft, avoiding areas of known hazardous weather or known severe turbulence, and maneuvering an aircraft into a suitable position for a visual approach.

During the monitoring period there were wind/weather impacts that required use of reverse flow. Air traffic patterns are used to safely allow aircraft to land and depart airports. The report addresses the consequences of the reverse flow. Non aircraft noise sources include rain, wind and FAA back-up generator. The ambient noise in Woodside during this monitoring period was 57decibels.

## Equipment

Woodside aircraft noise monitoring is conducted at the FAA Airway Facility every quarter, for a 14-day measurement period. The measurement period is performed during the same weeks during each quarter. This provides for a sufficient data sample to evaluate the overall noise climate similar to a permanent noise monitor site installation.

The equipment used to measure the sound level was an Environmental Monitor Unit 2200 noise monitor and Type 41DM-2 microphone manufactured by Bruel & Kjaer. The measurements consisted of monitoring the A-weighted decibels (dBA) in accordance with procedures and equipment which comply with International Electrotechnical Commission, and measurement standards established by the American National Standards Institute for Type I instrumentation. The microphone was calibrated prior to the start of the measurement. The monitor was housed in a weatherproof case and powered by a standard exterior electrical wall outlet. The microphone was mounted on a tripod at a height of 7 feet (see Figure 1). The sound levels at the site were continuously monitored, stored on the onboard memory and transferred to a removable memory stick for decoding. The decoded noise data was then processed in the Airport Noise and Operations Management System (ANOMS) for identification, noise to flight track matching and Community Noise Equivalent Level (CNEL) noise metric calculations.

## Aircraft Noise Analysis

Noise measurements were taken at the Woodside VOR. This report evaluates 1st Quarter 2017 which consisted of 14 full 24 hour days. The noise monitor measures noise at the pre-defined sound level threshold of 52dBA (day) and 50dBA (night). This means that not every aircraft passing over Woodside VOR creates a noise event. During the monitoring period a total of 1,376 aircraft noise events were recorded of which 817 (59%) correlated to SFO operations (SFO Events) and 560 (41%) correlated to other Bay Area airports (Non-SFO Events). The average aircraft generated Maximum Noise Level (Lmax) was 61dBA, the average Sound Exposure Level (SEL) was 72dBA, and the average aircraft noise event duration was 27 seconds. Table 1 shows these values as daily energy averages together with the event counts (SFO Events, Non SFO Events and Community).

**Table 1 - Noise Event**

| Date | SFO Events[1] | SEL (dBA)[2] | Lmax(dBA)[3] | Non- SFO Event | SEL (dBA) | Lmax (dBA) | Community | SEL (dBA) | Lmax (dBA) |
|---|---|---|---|---|---|---|---|---|---|
| 2-1 | 69 | 70 | 60 | 31 | 70 | 60 | 132 | 70 | 59 |
| 2-2 | 17 | 70 | 59 | 53 | 69 | 59 | 334 | 67 | 56 |
| 2-3 | 54 | 74 | 62 | 59 | 74 | 61 | 1,053 | 76 | 62 |
| 2-4 | 47 | 72 | 62 | 30 | 72 | 62 | 100 | 67 | 59 |
| 2-5 | 41 | 73 | 62 | 49 | 75 | 66 | 584 | 73 | 61 |
| 2-6 | 136 | 70 | 59 | 53 | 71 | 60 | 1,044 | 70 | 58 |
| 2-7 | 56 | 71 | 61 | 28 | 80 | 65 | 769 | 86 | 70 |
| 2-8 | 102 | 75 | 60 | 26 | 71 | 60 | 535 | 80 | 64 |
| 2-9 | 78 | 73 | 60 | 67 | 74 | 61 | 795 | 80 | 64 |
| 2-10 | 82 | 72 | 62 | 35 | 71 | 61 | 245 | 87 | 70 |
| 2-11 | 46 | 69 | 59 | 37 | 72 | 63 | 26 | 63 | 56 |
| 2-12 | 19 | 69 | 60 | 28 | 73 | 64 | 9 | 67 | 57 |
| 2-13 | 27 | 72 | 63 | 30 | 72 | 63 | 19 | 66 | 59 |
| 2-14 | 47 | 71 | 60 | 34 | 71 | 62 | 5 | 65 | 59 |
| **AVG** | **58** | **72** | **61** | **40** | **73** | **62** | **401** | **73** | **61** |

*[1] SFO Events are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft.*
*[2] SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and its energy is compressed into one second.*
*[3] Lmax - The maximum noise level is a measurement of the peak level of a noise event.*

**Table 2 – Daily SEL Comparison**

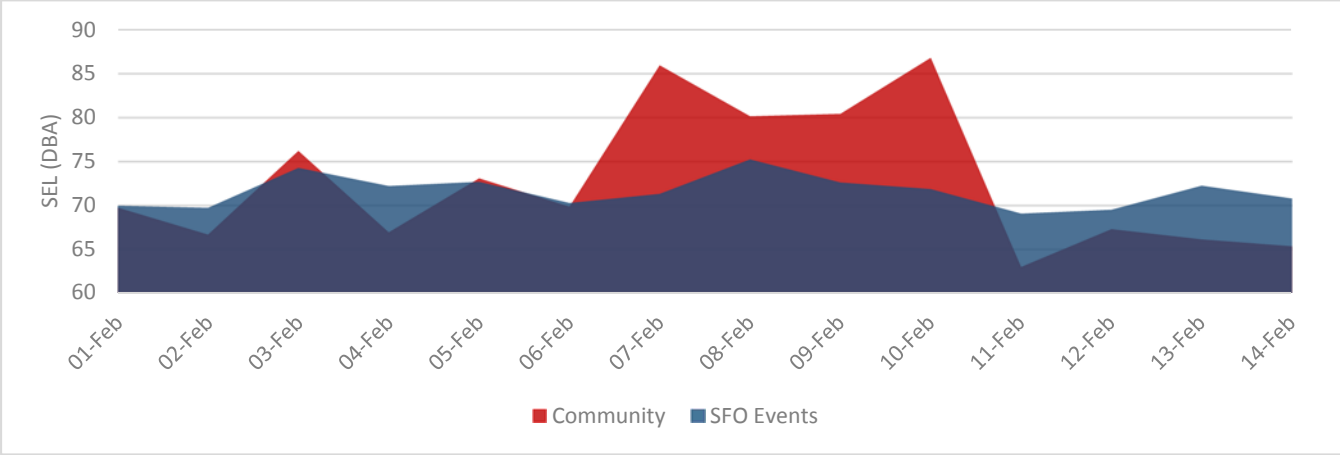



Table 2 shows a graphic comparison between the SEL of SFO Events and SEL of Community Events. For example, on February 11th, SFO aircraft events were on average 6dBA louder than the Community Events. While SFO Events were louder the ratio between the average amount of SFO Events and Community Events also varied (See Table 1). There were approximately twice as many SFO Events (46) than community events (26).

**Table 3– SFO Events by Hour of the Day**

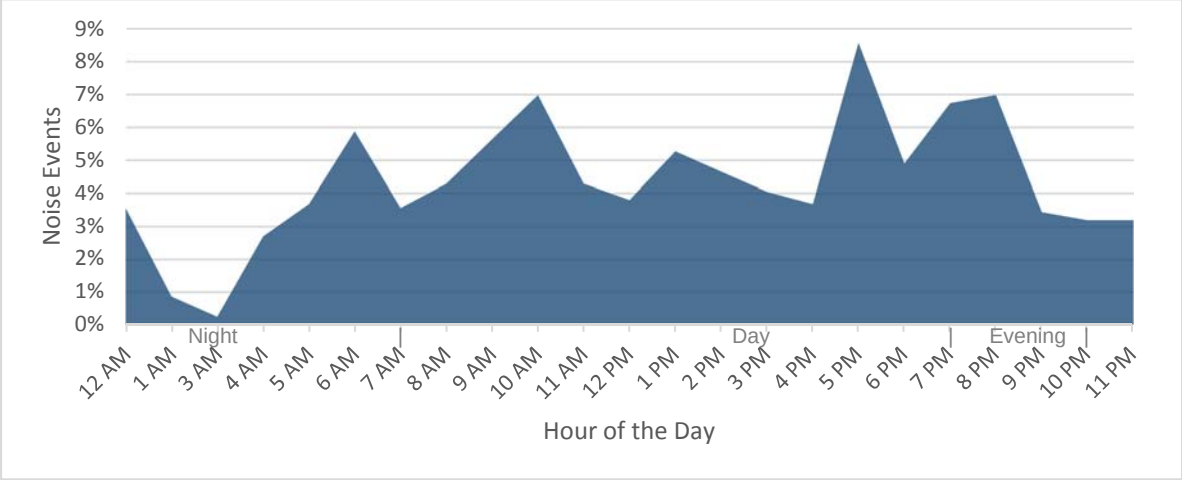
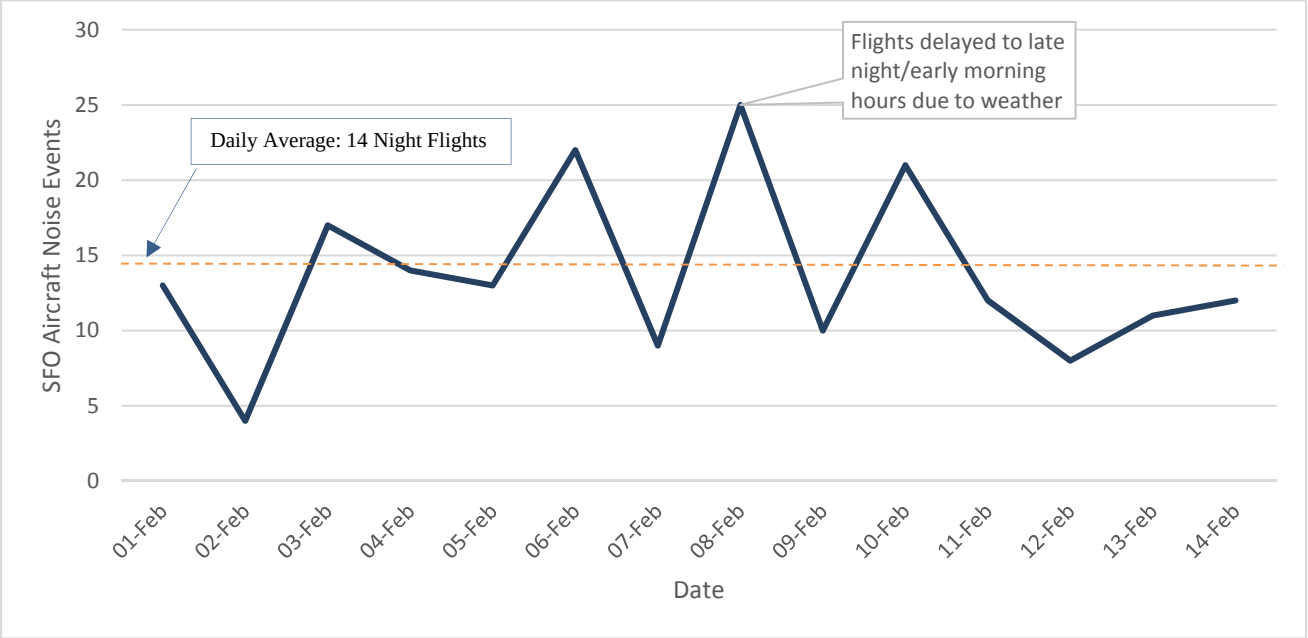



**Table 4 – SFO Events by Daytime, Evening and Nighttime hours**

| SFO Aircraft Noise Data (Single Noise Events) | | | Lowest (dBA) | Highest (dBA) | Average (dBA) |
|---|---|---|---|---|---|
| **Day (7:00 am- 7:00 pm)** | 487 events **60 %** | LMax | 51 | 76 | 58 |
| | | SEL | 53 | 90 | 68 |
| | | Duration | 1 sec | 60 sec | 27 sec |
| **Evening 7:00 pm- 10:00 pm)** | 140 events **17 %** | LMax | 52 | 70 | 59 |
| | | SEL | 58 | 80 | 70 |
| | | Duration | 5 sec | 60 sec | 32 sec |
| **Night (10:00 pm- 7:00 am)** | 190 events **23 %** | LMax | 50 | 75 | 57 |
| | | SEL | 57 | 84 | 67 |
| | | Duration | 5 sec | 60 sec | 29 sec |

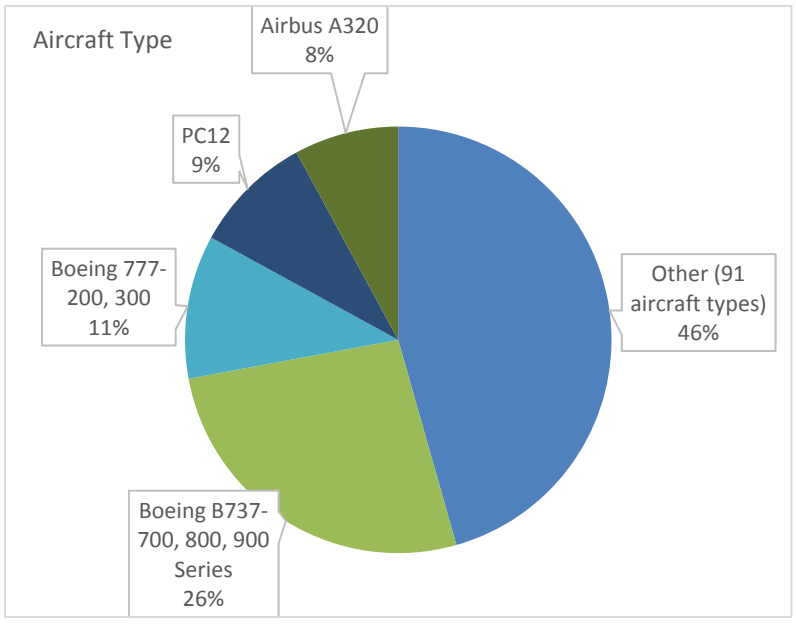
**Table 5 – SFO Nighttime Noise Events 10:00 PM – 7:00 AM**

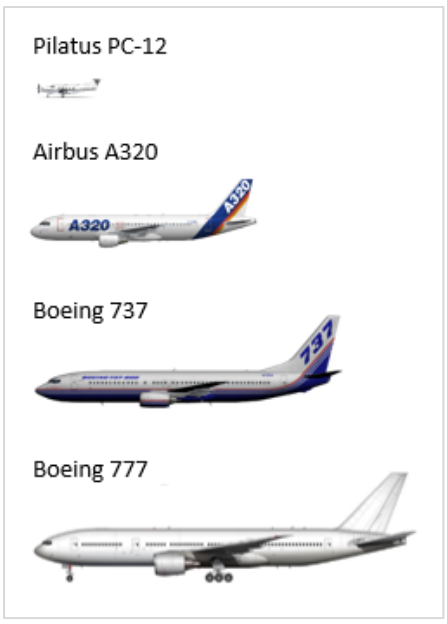


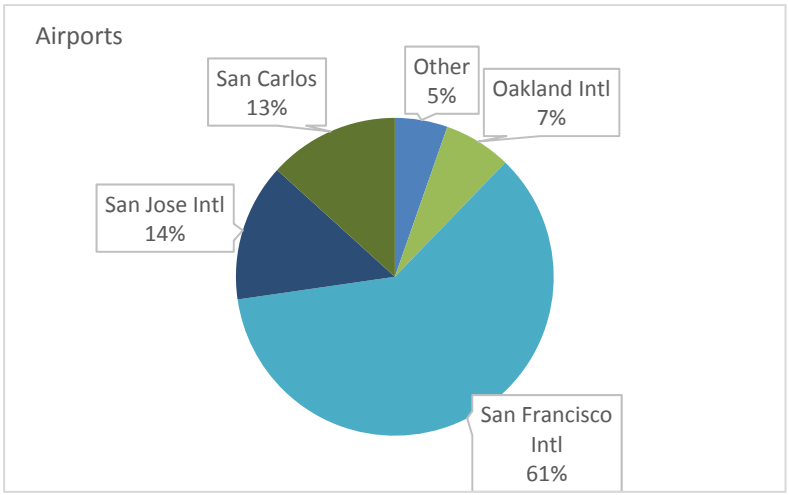

## Aircraft Operations

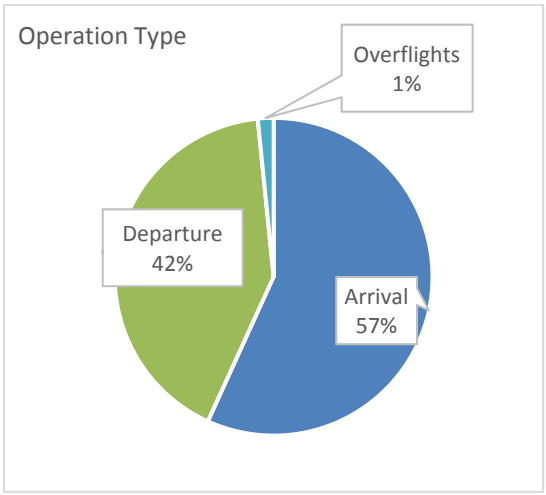
Aircraft operations that created a noise event were studied based on the aircraft type, airport origin, and operation type. SFO air traffic represented 61% of all correlated aircraft noise events, followed by San Jose International Airport (14%) and San Carlos Airport (13%). Moreover, 65% of SFO traffic were arrivals. 95 different aircraft types were tracked; 4 most frequent aircraft types account for 54% of all traffic (Appendix 3- Aircraft Type Reference Sheet). Three of these types are commercial aircraft operating out of SFO. The fourth is a general aviation Pilatus aircraft (PC12), operating out of San Carlos Airport.

**Table 6 – All Aircraft Operations**



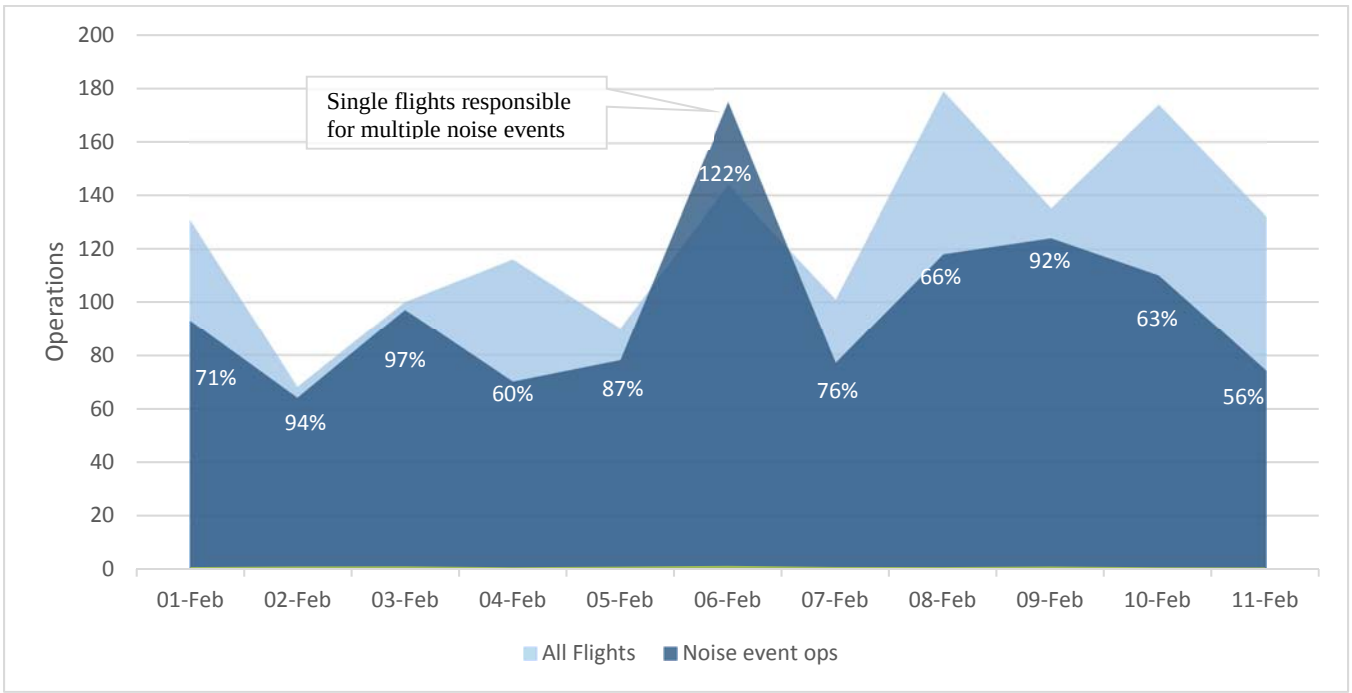





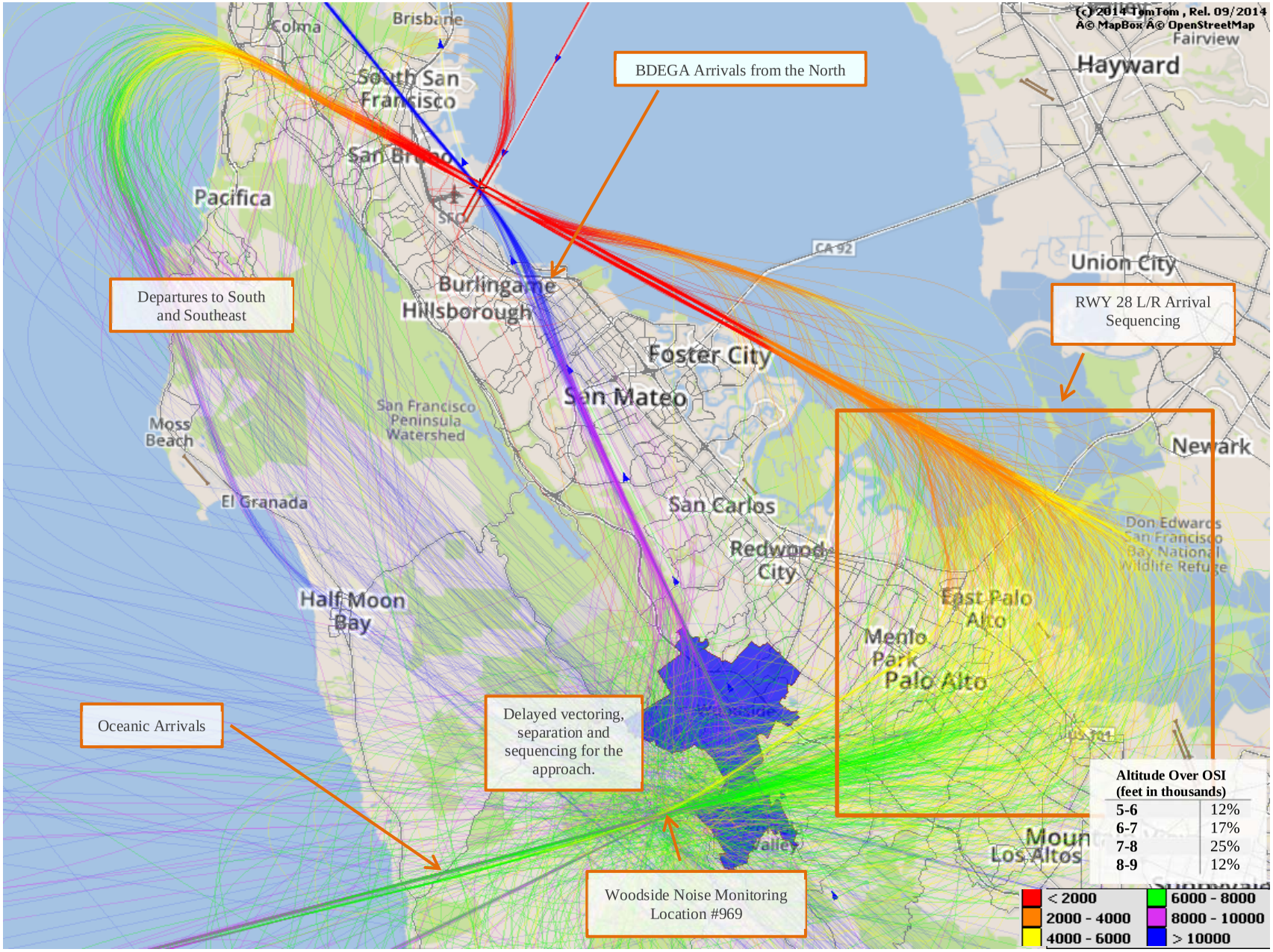




All aircraft which flew within a cylindrical airspace of 2 miles in radius and 15,000 feet in height, known as Point of Closest Approach (PCA); centered on the measurement location were evaluated for this measurement period. A daily average of 131 flights penetrated this airspace. An average of 68% of flights exceeded the threshold used to detect aircraft noise and registered events on the noise monitor. Appendix 3 lists these aircraft by type.

**Table 7- All Operations vs. Aircraft Noise Events (%)**



## SFO Aircraft Noise Event Flights by Altitude



## Noise Reporters

Analysis of noise reports includes all Woodside noise reporters and reports during the full monitoring days (Table 9). On average day each of the 7 people reported 32 flights. On February 10th, a day with the most amount of overflights there was only one reporter which submitted 3 noise reports. Nighttime reports between 10:00 PM and 7:00 AM account for 30% of all submitted noise reports. Table 10 depicts percentage of aircraft noise events and noise reports by hour of the day.

**Table 9- Noise Reporters**

| February 2017 | Noise Reporters | Noise Reports |
|---|---|---|
| 1 | 7 | 30 |
| 2 | 7 | 16 |
| 3 | 9 | 32 |
| 4 | 10 | 35 |
| 5 | 9 | 71 |
| 6 | 9 | 49 |
| 7 | 6 | 20 |
| 8 | 3 | 9 |
| 9 | 6 | 30 |
| 10 | 8 | 83 |
| 11 | 5 | 15 |
| 12 | 5 | 16 |
| 13 | 7 | 20 |
| 14 | 8 | 18 |
| **Average** | **7** | **32** |

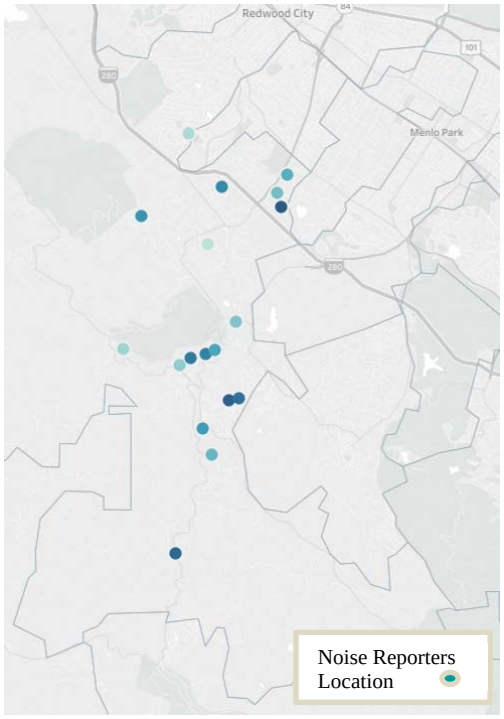
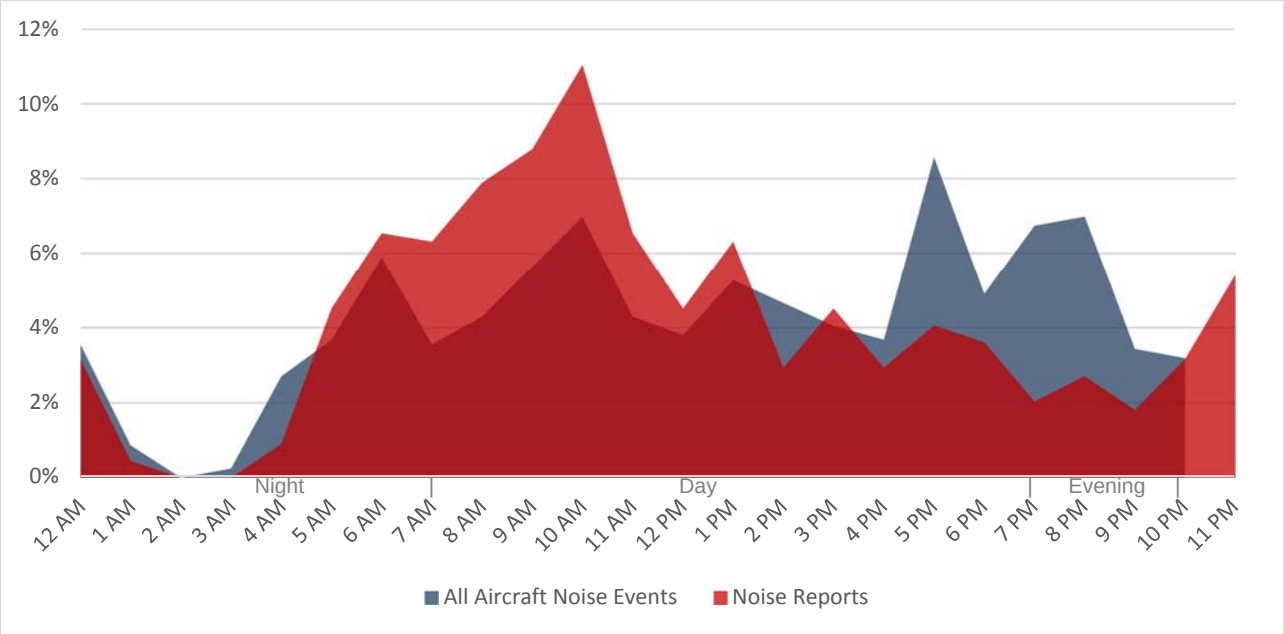


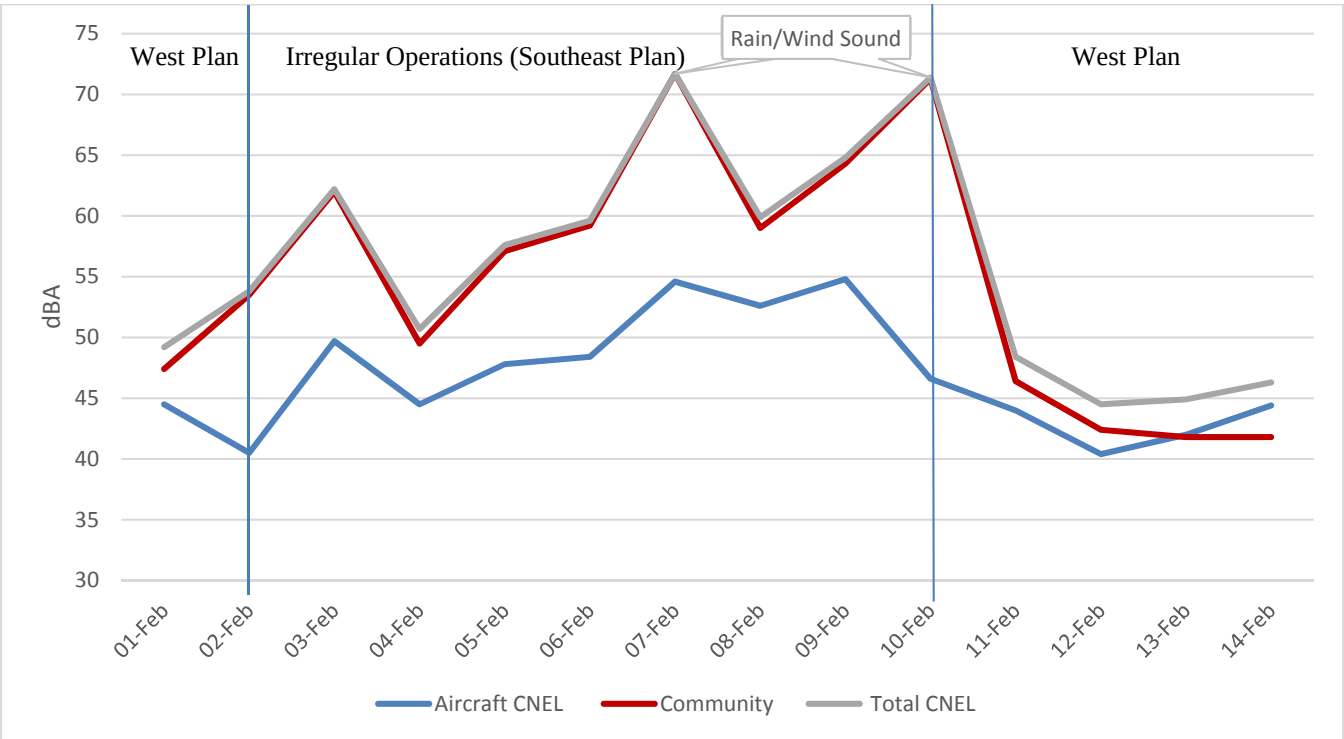

**Table 10 –Average Noise Reports by Hour of the Day (%)**



## Conclusion

Aircraft noise levels were measured at the Woodside VOR, approximately 16 miles away from SFO. Flights above Woodside typically consist of arrivals to Bay Area airports. The computed level for the average **Aircraft CNEL** was 49dBA, the average **Community CNEL** was 64dBA. Overall aircraft noise measurements contribute 0.5dBA additional noise to the **Total** cumulative average noise level of 64dBA CNEL. During this quarter the community saw an increase of flights due to aircraft vectoring as a consequence of inclement weather conditions and flight delays (above average rainfall during the measurement period). More than half of the flights are associated with SFO operations. Air traffic is seasonal so it is important to compare the same yearly quarters. Comparing 1st Quarter 2017 CNEL to 1st Quarters in 2016 aircraft CNEL has increased 7dBA and is 5dBA above the 2-year average. Also noted was increase of SFO events when compared to previous quarters. Single event (72dB) and LMax (61dB) values are consistent with the 2-year average. Community daily CNELs were higher on inclement weather days due to rain/wind sound recorded on the monitor. Aircraft noise levels were also higher due to weather related delay vectoring. Woodside aircraft noise monitoring threshold for noise events is set at a monitor minimum level of 50dB. In view of the fact that the monitoring location in Woodside is located in a quiet suburban community with ambient noise in the low 40s, any aircraft noise above this threshold may become a nuisance for residents.

**Table 8 –CNEL**



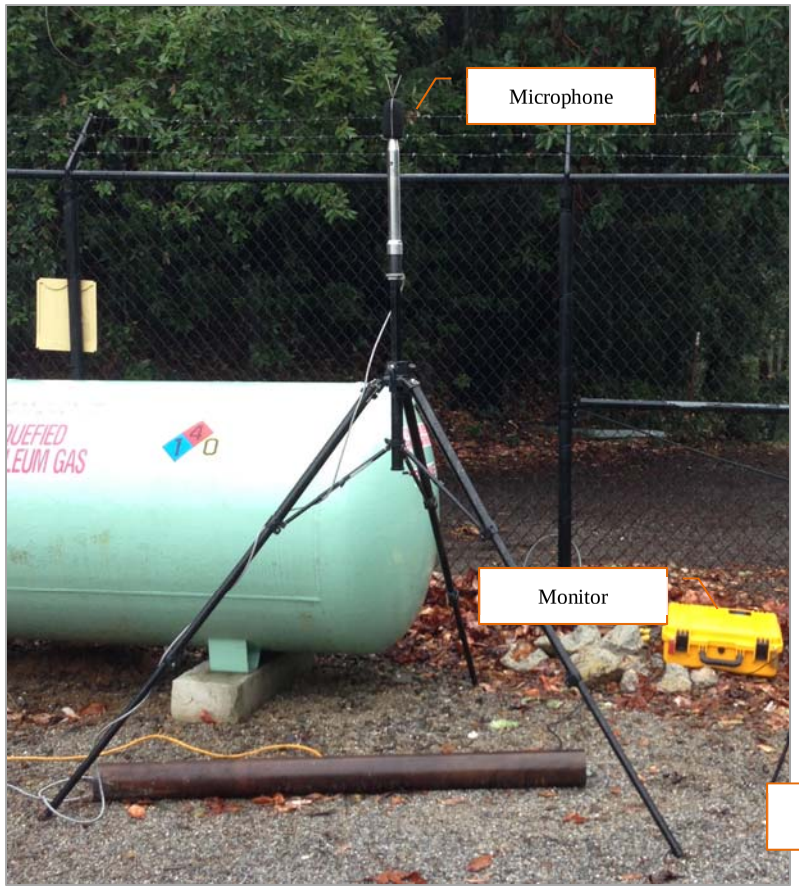

The California Code of Federal Regulations, Title 21, Division 2.5, Chapter 6, paragraph 5012 states, "The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels." Since the average Aircraft CNEL was measured at 49dBA for Woodside, this residential area has an acceptable level of aircraft noise as defined by state law. The extent of the 65dBA CNEL noise impact contour at SFO is shown in Appendix 3. This noise contour was generated using Federal Aviation Administration's Integrated Noise Model (version 7.0d). The Federal Aviation Administration accepted this map as part of the Noise Exposure Map update under Federal Aviation Regulations Part 150 on January 29, 2016. The results of the field monitoring validate the extent of the 65dBA CNEL noise impact boundary confirming Aircraft CNEL is less than 65dBA CNEL for this location.

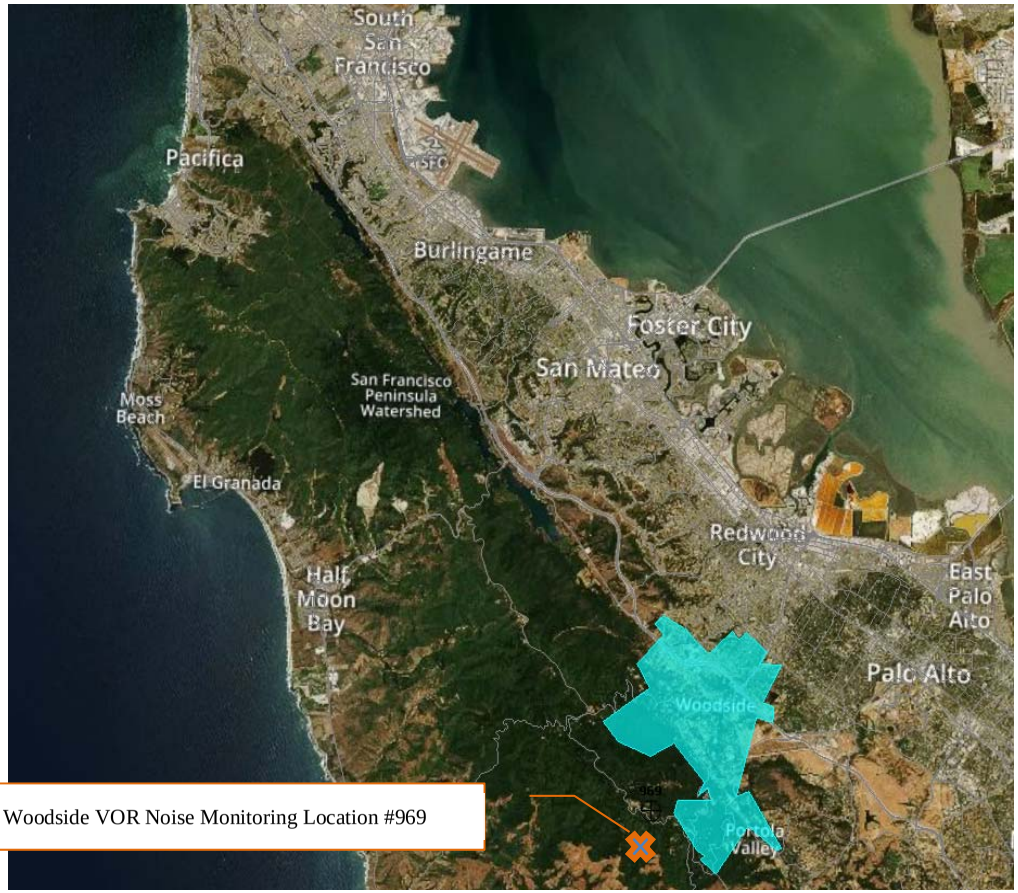
Figure 1 – Woodside Portable Noise Monitoring Comparison Table

| | Yearly Quarters | Aircraft CNEL (dBA) | Community CNEL (dBA) | Total CNEL (dBA) | SFO Aircraft Events[1] | SFO SEL (dBA) | SFO Lmax (dBA) |
|---|---|---|---|---|---|---|---|
| **2014** | Qtr4 | 41 | 49 | 49 | 29 | 71 | 61 |
| **2015** | Qtr1 | - | - | - | - | - | - |
| | Qtr2 | 44 | 56 | 56 | 53 | 70 | 59 |
| | Qtr3 | 42 | 45 | 47 | 29 | 70 | 60 |
| | Qtr4 | 42 | 49 | 50 | 30 | 71 | 61 |
| **2016** | Qtr1 | 42 | 54 | 54 | 33 | 71 | 62 |
| | Qtr2 | 44 | 47 | 49 | 43 | 71 | 61 |
| | Qtr3 | 43 | 52 | 52 | 30 | 70 | 59 |
| | Qtr4 | - | - | - | - | - | - |
| **2017** | Qtr1 | 49 | 64 | 64 | 58 | 72 | 61 |
| **Average** | | **44** | **56** | **57** | **38** | **71** | **61** |

[1] Quarterly Daily Average

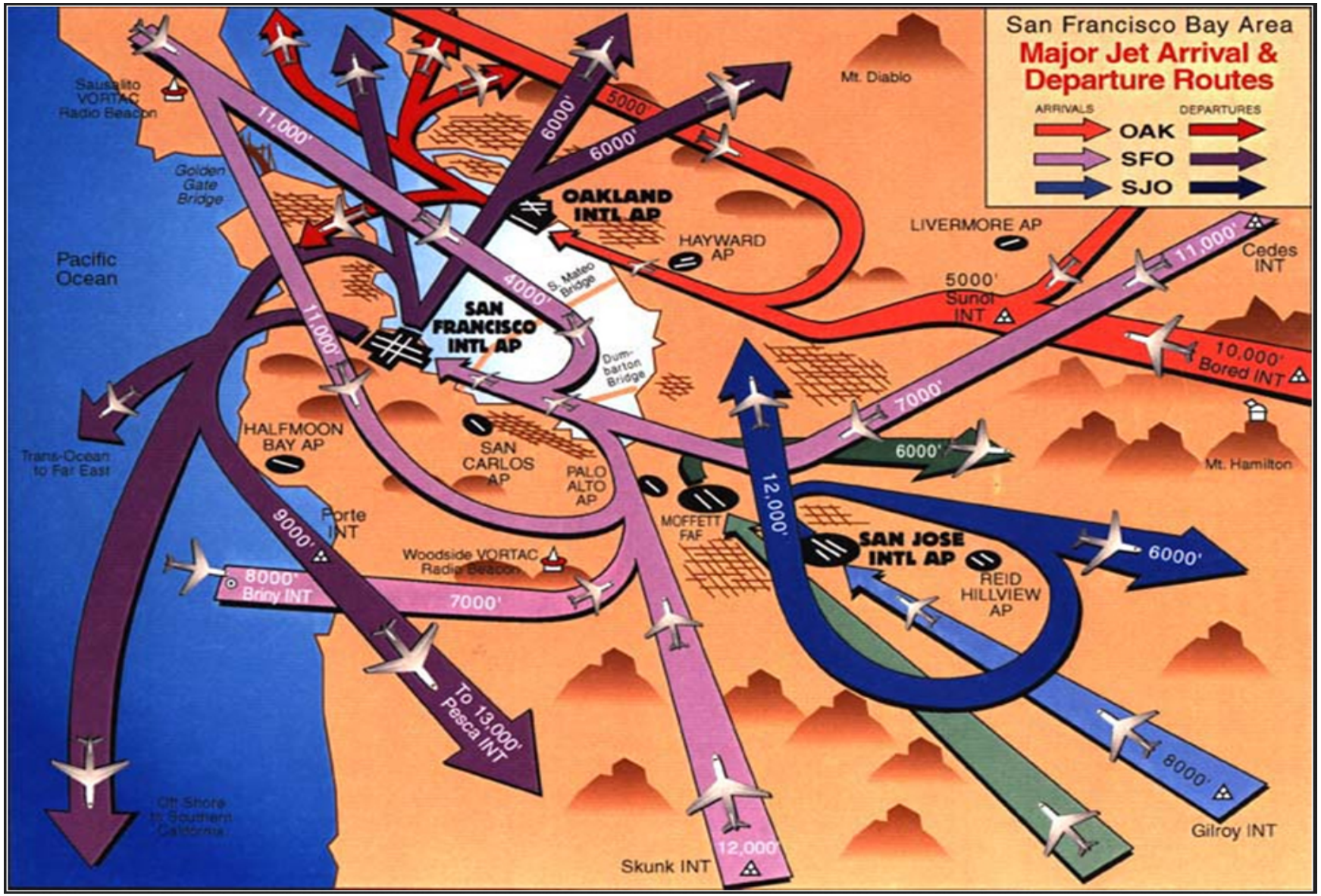
Figure 2 – Microphone mounted on tripod and Monitor at the Woodside VOR and Monitoring Location #969 at Woodside (blue zone)



## Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

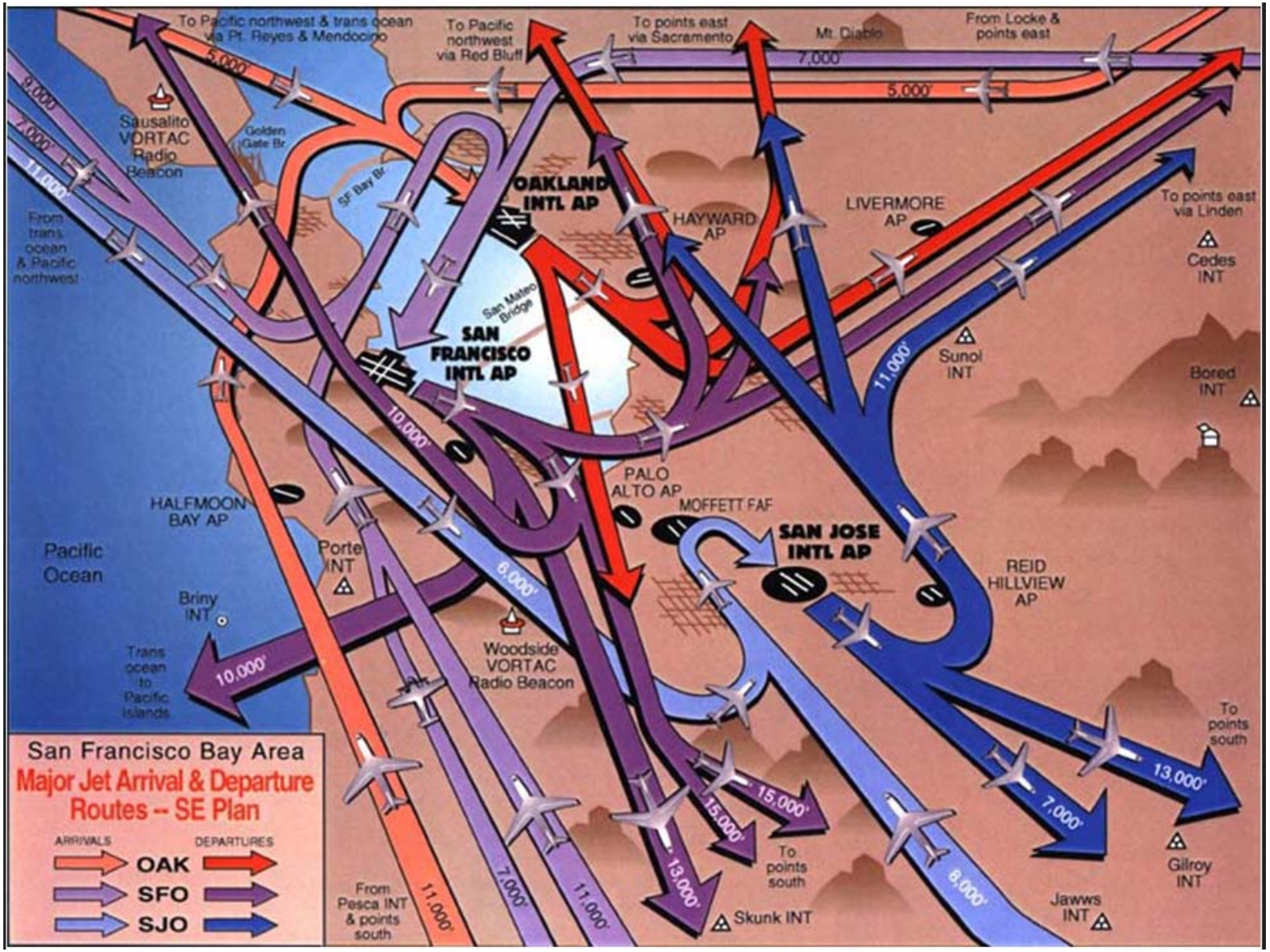
**West Flow Plan**




Note: Image not to scale and not all flights paths are shown.

## Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

### Southeast Flow Plan



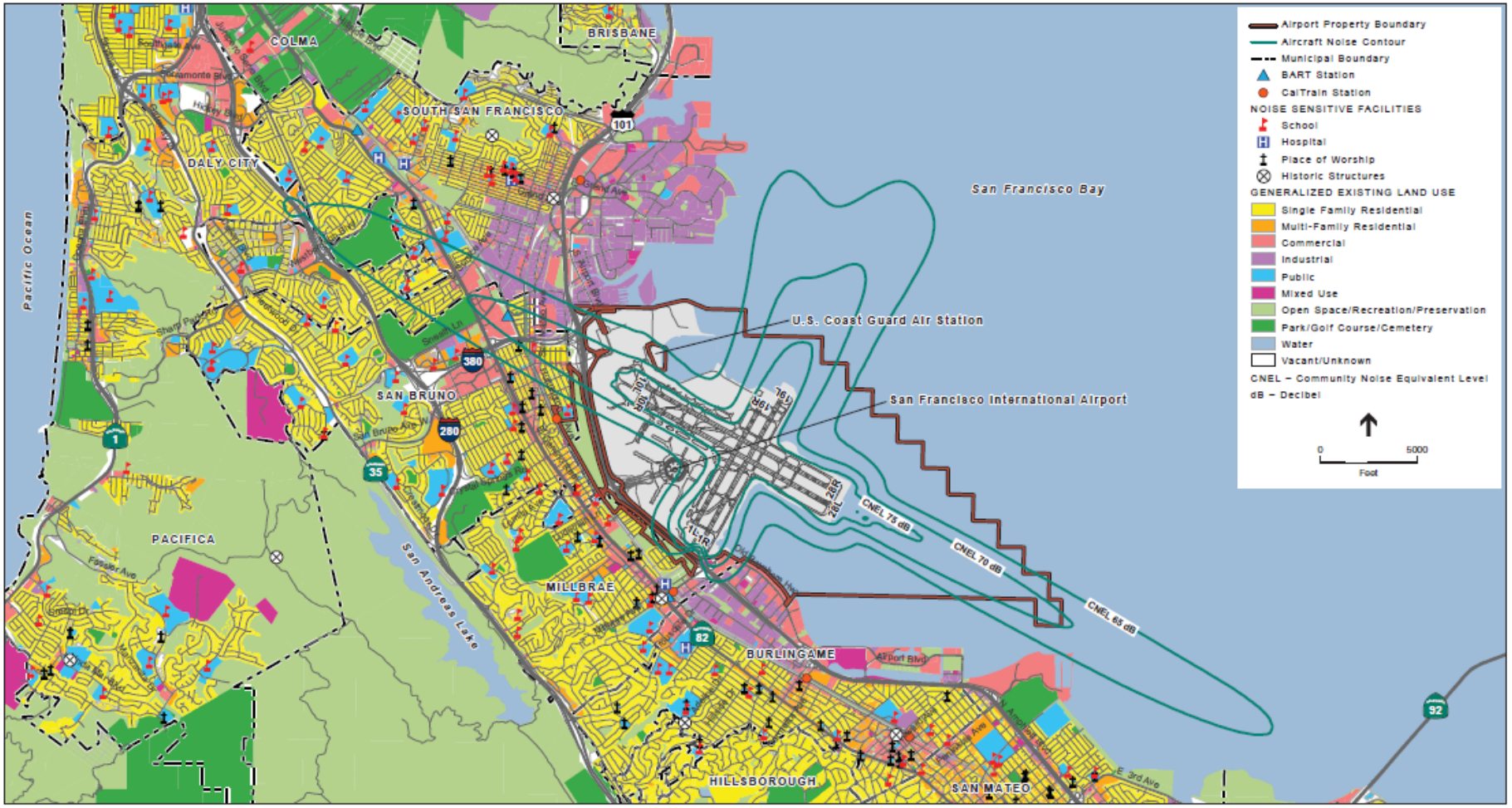

*Note: Image not to scale and not all flight paths are shown.*

# Appendix 2 – Aircraft Type Reference Sheet

| Aircraft Code | Description |
|---|---|
| **Wide Body Jet** | |
| **A306** | Airbus A300-600F |
| **A332** | Airbus A330-200 |
| **A333** | Airbus A330-300 |
| **A343** | Airbus A340-300 |
| **A346** | Airbus A340-600 |
| **A359** | Airbus A350-900 |
| **A388** | Airbus A380-800 |
| **B744** | Boeing 747-400 |
| **B748** | Boeing 747-8 |
| **B762** | Boeing 767-200 |
| **B763** | Boeing 767-300 |
| **B772** | Boeing 777-200 |
| **B77L** | Boeing 777-200LR |
| **B77W** | Boeing 777-300ER |
| **B788** | Boeing 787-8 |
| **B789** | Boeing 787-9 |
| **DC10** | McDonnell Douglas DC-10 |
| **MD11** | McDonnell Douglas MD-11 |
| **Narrow Body Jet** | |
| **A319** | Airbus A319 |
| **A321** | Airbus A321 |
| **B733** | Boeing 737-300 |
| **B734** | Boeing 737-400 |
| **B737** | Boeing 737-700 |
| **B738** | Boeing 737-800 |
| **B739** | Boeing 737-900 |
| **B752** | Boeing 757-200 |
| **B753** | Boeing 757-300 |
| **CRJ2** | Bombardier CRJ200 |
| **CRJ7** | Bombardier CRJ700 |
| **CRJ9** | Bombardier CRJ-900 |
| **DH8D** | DeHavilland Dash 8 |
| **E135** | Embraer ERJ-135 |
| **E145** | Embraer ERJ-145 |
| **E45X** | Embraer EMB-145XR |
| **E170** | Embraer EMB 170 |
| **E75L** | Embraer ERJ 175 (Long Wing) |
| **E75S** | Embraer ERJ 175 (Short Wing) |
| **MD83** | McDonnell Douglas MD-83 |
| **Helicopter** | |
| **CH7** | Kompress |
| **EC35** | Eurocopter 135 |
| **EC45** | Eurocopter 145 |
| **EH1** | AgustaWestland 101 |
| **HELO** | Helicopter |
| **General Aviation Aircraft** | |
| **BE33** | Beechcraft Debonair |
| **BE35** | Beechcraft 35 Bonanza |
| **BE36** | Beechcraft 36 Bonanza |
| **BE55** | Beech 55 Baron |
| **BE58** | Beechcraft 58 |
| **BE65** | Beechcraft 65 |
| **C162** | Cessna C162 |
| **C172** | Cessna Skyhawk |
| **C180** | Cessna Skywagon |
| **C182** | Cessna Skylane |
| **C206** | Cessna Stationair |
| **DA40** | Diamond DA-40 |
| **DA42** | Diamond DA-42 |
| **LNC4** | Lancair 4 |
| **M20P** | Mooney M-20 |
| **M20T** | Mooney M-20 (Turbo) |
| **PA27** | Piper Aztec |
| **P28A** | Piper 28A Cherokee |
| **PA31** | Piper PA-31 Navajo |
| **PA46** | Piper PA-46 Malibu |
| **RV8** | Vans RV-8 |
| **S22T** | Cirrus SR22 Turbo |
| **SR20** | Cirrus SR-20 |
| **SR22** | Cirrus SR-22 |
| **Business Aircraft** | |
| **BE9L** | Beechcraft King Air |
| **BE20** | Beechcraft 200 King Air |
| **BE40** | Beech 400 Beechjet |
| **C208** | Cessna Caravan |
| **C25B** | Cessna Citation CJ3 |
| **C25C** | Cessna Citation CJ4 |
| **C421** | Cessna Golden Eagle |
| **C525** | Cessna CitationJet/M2 |
| **C550** | Cessna Citation II |
| **C560** | Cessna Citation V |
| **C56X** | Cessna Citation Excel |
| **C680** | Cessna 680 Citation Sovereign |
| **C750** | Cessna 750 Citation X |
| **CL30** | Bombardier Challenger 300 |
| **CL35** | Bombardier Challenger 350 |
| **CL60** | Bombardier Challenger 600 |
| **GL5T** | Bombardier Global Express |
| **GLEX** | Bombardier Global Express (twin-jet) |
| **GLF4** | Gulfstream GIV |
| **GLF5** | Gulfstream GV |
| **GLF6** | Gulfstream G650 |
| **E50P** | Embraer Phenom 100 |
| **E55P** | Embraer Phenom 300 |
| **EA50** | Eclipse 500 |
| **F2TH** | Falcon 2000 (Twin Jet) |
| **MU2** | Mitsubishi MU-2 |
| **P180** | Piaggio P.180 Avanti |
| **PC12** | Pilatus PC-12 |
| **PRM1** | Beechcraft/Raytheon Premier 1 |
| **TBM7** | Socata TBM 700 |
| **TBM8** | Socata TBM 850 |
| **SW3** | Swearingen Merlin 3 |

**Wide Body Jet** (wide enough for two passenger aisles); **Narrow Body Jet** (wide enough for one passenger aisles); **Business Aircraft** (transportation for small groups of people); **General Aviation Aircraft** (Generally small, propeller-driven aircraft); **Helicopters** (Aircraft operated by rotor blades); **Military** (U.S Military Aircraft).

## Appendix 3 – 2014 Noise Exposure Map




SOURCE: ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

SFO FAR Part 150 Noise Exposure Map Report . 120832

**Exhibit 5-1**

2014 Noise Exposure Map – San Francisco International Airport

# CORRESPONDENCES

Regular Meeting # 308
August 2, 2017

THE CITY OF
HALF MOON BAY
CALIFORNIA

July 21, 2017

Congresswoman Jackie Speier
Suite 780
155 Bovet Road
San Mateo, CA 944020

**Re: Excessive aircraft noise on the Coastside**

Dear Congresswoman Speier:

The City Council unanimously urges you to work with the FAA, the airport, and the SFO Roundtable to reduce the burden on our Coastside citizens and return to the quiet and serenity that has attracted so many of us to the Coastside.

The Half Moon Bay City Council's highest priority is protecting our citizens' health and welfare. In the last few years, due to changes in routing for aircraft, the frequency, altitude, and most disturbingly, the nighttime overflights have become a serious issue for many of our residents. Babies cannot sleep, windows rattle constantly, and it becomes impossible to have an outdoor conversation without constant interruptions. Citizens of the Coastside have gathered over 400 signatures to ask for changes. We know it is possible to decrease the noise as it was much less in the past when more aircraft were routed over the ocean than the present situation where aircraft frequently fly directly over our homes.

We thank you for the efforts you have already made on behalf of our residents and wish your future efforts will bring us relief from the increasing burden of excessive aircraft noise.

Sincerely,

Debbie Ruddock, Mayor

c. James A. Castañeda, AICP
Program Coordinator
SFO Airport/Community Roundtable

RECEIVED
2017 JUL 21 P 4:03
SAN MATEO COUNTY
PLANNING AND BUILDING
DEPARTMENT

Jackie Speier
Member of Congress

To my Constituents:

This FAA Initiative Process has been and will continue to be a unique opportunity to work directly with the FAA to ameliorate noise in our communities. While I am disappointed that not all recommendations received a "feasible" determination, it is imperative that we now move expeditiously to implement recommendations that *are* deemed "feasible" while awaiting those still to be evaluated.

While there are many significant recommendations, I believe that the most pressing priority is creating a quieter nighttime environment that allows families and children to obtain health-restoring sleep to re-charge for work and school. Creating this quieter nighttime environment for our residents will be a complex task requiring collaboration and contributions from all stakeholders, but it will make a significant difference in people's lives.

Important concepts that were deemed Not Feasible through this FAA Initiative process may later be appropriate for the SFO Airport/Community Roundtable to evaluate for possible future action.

FAA leadership and the dedicated front-line professionals at NCT TRACON, SFO Tower and WSC Mission Support are committed to continuing to work with the SFO Airport/Community Roundtable, our communities, and my office. In fact, NCT TRACON has already begun making improvements that benefit our community.

We still have more work to do and I look forward to continuing efforts to achieve quieter, healthier skies overhead all our communities.

All the best,

Jackie

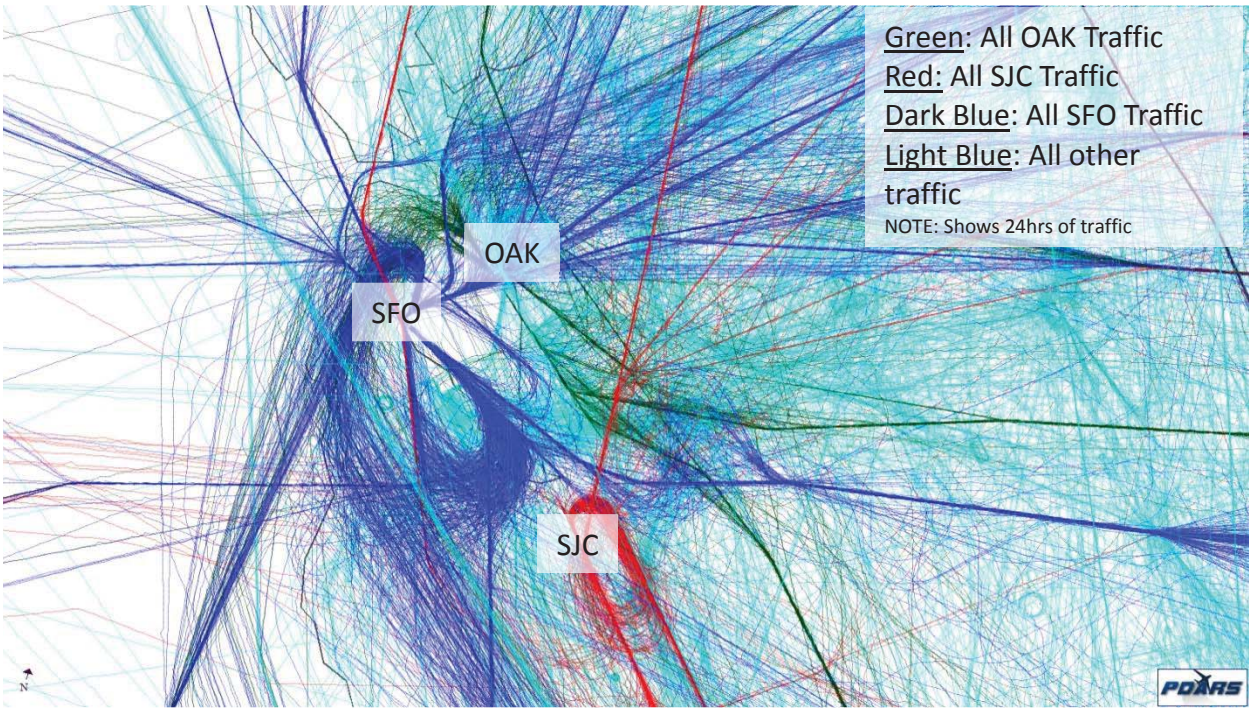

Federal Aviation Administration

# FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties

# PHASE TWO

Compiled at the Requests
of Representatives Farr (Panetta),
Eshoo and Speier

**July 2017**


Green: All OAK Traffic
Red: All SJC Traffic
Dark Blue: All SFO Traffic
Light Blue: All other traffic
NOTE: Shows 24hrs of traffic
OAK
SFO
SJC
POARS

**July 2017**

**CONTENTS**

## EXECUTIVE SUMMARY

This report updates the work that the Federal Aviation Administration (FAA) has undertaken to address the noise concerns of Santa Cruz, Santa Clara, San Mateo and San Francisco counties.

In November 2015, the FAA released the "FAA Initiative to Address Noise Concerns in Santa Cruz/Santa Clara/San Mateo/San Francisco Counties" report, which was compiled at the requests of U.S. Representatives Eshoo, Speier and Farr. The purpose of the three-phased initiative was to summarize and establish a framework for responding to dozens of specific recommendations submitted by the three members' constituencies. The recommendations pertained to longstanding aircraft noise concerns, as well as to concerns related to the FAA's implementation of new optimized routes beginning in November 2014 and concluding in April 2015.

During the first phase of the Initiative, the FAA conducted its detailed analysis and preliminary feasibility study of all the recommendations summarized and included in the November 2015 Initiative. The FAA released its Phase One Report in May 2016.

During the spring of 2016 and to facilitate community involvement within their respective districts, the Congressional delegation designated a total of 12 representatives—locally-elected officials from Santa Cruz, Santa Clara and San Mateo counties – to serve on the Select Committee. The Select Committee's role was to review the FAA's Phase One Report, gather public input within their represented areas about measures to address noise concerns, and make recommendations that reflect public input. The Select Committee diligently worked to identify which of the initially feasible recommendations, including amendments and/or new procedures, could be included within the second phase of the Initiative. The San Francisco Airport Community Roundtable provided guidance and assistance to the Select Committee's efforts as well.

The Select Committee held a total of 10 public meetings, and the SFO Roundtable concurrently discussed the Initiative during its own regularly scheduled meetings. In November 2016, the Congressional delegation provided the FAA with 104 recommendations from these two bodies.

The FAA's Phase 2 report groups the 104 recommendations into seven categories:

- Addressed Concerns
- Feasible and could be implemented in the Short Term
- Feasible and could be implemented in the Long Term
- Under evaluation
- Not endorsed by the Select Committee
- Not endorsed by the FAA
- Not an FAA action

In evaluating the recommendations, the FAA remains committed to addressing community concerns.

As of the date of this report, 13 percent of the recommendations have already been addressed. Fourteen percent have been found potentially feasible; the agency will undertake the requisite environmental, safety and community outreach processes for these. The FAA continues to evaluate an additional 52 percent of the recommendations. Finally, 11 percent were either not endorsed by the Select Committee or were identified as not endorsed by the agency, and the remaining 10 percent do not fall under the FAA's purview.

Communities affected by the SERFR arrival route overwhelmingly supported a return to the former Big Sur (BSR) flight track. By contrast, communities under the former BSR flight track strongly opposed a return to the former route. Following months of community input, discussion and deliberation, the Select Committee voted 8-4 to create a new arrival route over the Big Sur ground track. The Committee's recommendation was to develop a new route as an Optimized Profile Descent (OPD), which would enable aircraft to descend in a quieter, idle-power setting.

The FAA has begun the five-phase air traffic procedure development process associated with this specific recommendation. The first phase – developing a conceptual route – is complete. The next phase will involve creating a working group to design the route, including an environmental and safety review before reaching its final decision. The FAA anticipates the entire process will take 18-24 months, from notional design to publication of a final design.

The current SFO Class B airspace does not fully contain the entire SERFR route. As a result, aircraft on the SERFR must level off to stay within the protected airspace. Leveling off requires pilots to use speed brakes and increase thrust, which reduces the SERFR's noise-reducing, idle-power descent benefits. A proposed modification of Class B airspace, if approved, should allow more SERFR arrivals to fly quieter idle-power descents. We also are evaluating proposals to raise altitudes of aircraft on the SERFR as well as aircraft that are vectored off the route.

While the SERFR was the most high-profile item in the members' Initiative, there are many others of great importance to other communities. The FAA has already addressed many of these concerns. Examples of these include keeping SFO arrivals out over the water as much as possible; keeping SFO arrivals and departures away from noise-sensitive areas at night; and assigning SFO departures unrestricted climbs so they are as high as possible when they turn over land.

Some recommendations are dependent on others being completed first. For example, we cannot evaluate a proposal to raise the altitude on the BRIXX arrival route into San Jose International Airport until we complete the design of the BSR overlay because of interaction between the two routes.

The FAA appreciates the opportunity to work collaboratively with communities and local members of Congress to address a wide range of noise concerns. This report does not represent the end of our work. As we move into Phase 3, the FAA is committed to providing communities with updates on our progress.

## BACKGROUND

**Status of the Initiative**

In November 2015, the "FAA Initiative to Address Noise Concerns in Santa Cruz/Santa Clara/San Mateo/San Francisco Counties" was released. The Initiative includes multiple recommendations to the published procedures serving the Northern California (NorCal) Airspace, as well as detailing the phases in which these recommendations will be considered by the FAA. These recommendations came from multiples meetings and correspondence with congressional offices and local community representatives of Santa Cruz, Santa Clara, San Mateo and San Francisco Counties.

The "FAA Initiative to Address Noise Concerns in Santa Cruz/Santa Clara/San Mateo/San Francisco Counties" outlined a three phase approach to review and respond to the community proposals. These three phases are collectively known as the NorCal Initiative:

- Phase One: The FAA will conduct a detailed analysis and a preliminary feasibility study focusing on flight procedures criteria and overall fly-ability of the new Performance Based Navigation (PBN) procedures and potential procedural modifications. This phase includes coordination with the local stakeholders.

- Phase Two: The FAA will consider any amendments and/or new procedures that are determined to be initially feasible, flyable, and operationally acceptable from a safety point of view. As part of this effort, FAA will conduct the formal environmental and safety reviews, coordinate and seek feedback from existing and/or new community roundtables, members of affected industry, and the National Air Traffic Controllers Association (NATCA) before moving forward with the formal amendment process.

- Phase Three: The FAA will implement procedures; conduct any required airspace changes and additional negotiated actions, as needed

In April 2016, in advance of the release of the Phase One detailed analysis and a preliminary feasibility study report, U.S. Representatives Anna G. Eshoo (CA-18), Sam Farr (CA-20) and Jackie Speier (CA-14) formed a Select Committee on South Bay Arrivals ("Select Committee"). The Select Committee comprised of 12 local elected officials representing Santa Cruz, Santa Clara, and San Mateo Counties. Together with the San Francisco (SFO) Airport/Community Roundtable ("SFO Roundtable"), the role of the Select Committee and SFO Roundtable was to lead the public coordination aspect of Phase One. Specifically, the Select Committee was tasked with accepting public input and reviewing FAA proposals with a focus on arrival issues that primarily impact the South Bay Region while the SFO Roundtable was tasked with accepting public input and reviewing FAA proposals with a focus on SFO departures as well as arrivals that primarily impact the SFO Roundtable geographical area.

In May 2016, the FAA released the NorCal Initiative Phase One report. Following the release of this report, the Select Committee started a series of public meetings; the first three had the sole purpose of collecting public comment. The remaining seven meetings, spanning May – November 2016, provided a venue in which the Select Committee could ask specific questions of

the FAA in order to facilitate the formation of their recommendations. Throughout this same time period, the SFO Roundtable had their regular meetings, which included discussion on the NorCal Initiative.

In November 2016, the SFO Roundtable and the Select Committee respectively released reports, detailing their recommendations on the NorCal initiative. These recommendations included items in the NorCal Initiative Phase One report, as well as items not included in the report.

This NorCal Initiative Phase Two report provides information on the feasibility and status on each of the recommendations put forward by the SFO Roundtable and Select Committee. The intent of this document is to categorize each recommendation as "Addressed Concern", "Feasible and could be implemented in the short term", "Feasible and could be implemented in the long term" or "Not endorsed". This report is a living document, such that it will be updated as recommendations which start out in a particular category are moved into a different category, as appropriate.

## National Environmental Policy Act

In addition to its mandate to ensure the safe and efficient use of the NAS, the FAA complies with the requirements of the National Environmental Policy Act ("NEPA"). Although not specifically detailed within the NorCal Initiative, the FAA's processes and standards for evaluating noise impacts associated with potential amendments to currently published procedures—consistent with FAA Order 1050.1F (effective July 16, 2015)—will be followed before implementing any airspace or procedural changes. Finally, this document does not constitute either a final decision of the FAA or a re-opening of the FAA's August 6, 2014 final decision for the NorCal Optimization of Airspace and Procedures in the Metroplex (OAPM).

## INTRODUCTION

**Timelines**

This report includes implementation timelines for the recommendations presented in the SFO Roundtable and the Select Committee Reports. These timelines incorporate a number of established Federal processes and sub-processes. To best understand why the FAA determined the presented implementation timelines, some background to these processes is necessary. This section intends to provide that background.

**1. Rule Making:**

Federal Agencies may issue regulations within their authority through the rule-making process. This process is generally made up of the Agency taking some preliminary steps before issuing a proposed rule. This proposed rule must be published it the Federal Register to notify the public and give them an opportunity to submit comments. The Agency may also hold public hearings where people can make statements and submit comments. The Agency takes all comments into consideration prior to issuing the final rule.

a) Class B Modifications: All Class B boundaries, including SFO Class B, are provided in FAA Order 7400.11A. FAA Order 7400.11A is included by reference in 14 Code of Federal Regulations (CFR) §71.41, and as such making amendments to Class B airspace is a rule making action.

The steps in the Class B rule making process is as follows:

- An Air Traffic facility study ("Staff Study") provides the details of Class B modification proposal as well as the justification of the need for the Class B amendments.
- The Staff Study is sent to FAA headquarters (HQ) for review and authorization for the formation of a committee ("Ad-Hoc committee") for review and to provide recommendations. This Ad-Hoc committee represents a cross section of airspace users and aviation organization that would be affected by the proposed airspace change. The FAA participation on the committee is limited to the role of technical advisor or subject matter expert only. The FAA is not a voting member of the group.
- The Ad-Hoc committee reviews the proposal and provides comments.
  Timeline: 180 days
- The FAA reviews the comments provided by the Ad-Hoc committee and makes adjustments, as necessary.
  Timeline: 60 days.
- The FAA conducts informal airspace meetings to present the proposed modifications and to facilitate public comment.
  Timeline: 245 days.

- The FAA reviews comments and makes adjustments to the proposed Class B modifications, as necessary.
  Timeline: 120 days.
- The Draft Class B modification is prepared as a Notice of Proposed Rulemaking (NPRM) for publication in the Federal Register
  Timeline: 30 days
- The NPRM is published in the Federal Register for public comment
  Timeline: 60 days
- The FAA reviews comments and makes adjustments to the proposed Class B modifications, as necessary.
  Timeline: 120 days.
- The final rule is published in the Federal Register with an effective date based on the VFR sectional Charting Cycle.
  Timeline: 302 days.

Total time, not including the development of the Staff Study: ~3 years.

**2. Non-Rule Making:**

Non-rule making processes do not result in the amendment to any CFR or amend any other document which is included by reference in a CFR.

a. Air Traffic Facility Actions: These actions provide specific directions for the local air traffic control facility. These actions could be a change to a facility's Standard Operating Procedures (SOP), to Letter of Agreements (LOA) between facilities or part of regular Air Traffic Controllers training to increase awareness of certain issues

The steps as follows:

- Initial proposal: The Air Traffic Facility proposes an amendment to their SOP, to an LOA with another Air Traffic Facility or training requirements. This initial proposal is vetted within the Air Traffic Facility.
  Timelines: few weeks for training proposal
  1 – 8 months for an SOP change
  1 – 18 months for an LOA change.
- The LOA is sent for review and approval
  Timelines: few weeks

Total time: a few weeks – more than 1 year.

b. Creation/Amendment of an instrument flight rule procedure: Amending or creating a new instrument flight rule procedure is an example of a non-rule making process. Given the variables involved with each of the following steps, the timelines provided are only intended on capturing the average time taken for each step.

The steps in the instrument flight rule procedure process is as follows:

- Initial Feasibility/Analysis of the procedure. The proponent of the procedure does initial research into the details and justifications for the new/amended procedure. This stage is completed once the proponent places the request and the associated justification into the IFP Information Gateway.
  Timeline: 45 days

- FAA Order 7100.41A: Performance Based Navigation (PBN) processing: This is the required process for all new and amended PBN procedures and/or routes, Area Navigation (RNAV)/Required Navigation Performance (RNP) Standard Instrument Departures (SIDs), RNAV Standard Terminal Arrivals (STARs) and RNAV routes. The FAA Order 7100.41A breaks down the design and implementation process into 5 stages:
  - Preliminary Activities: This includes the conduction of baseline analysis to identify expected benefits and develop conceptual procedures and/or routes for the proposed project.
  - Design Activities: This includes the creation of a working group in order to design a procedures/route that meets the project goals and objectives. An environmental review is included in this stage.
  - Development and Operational Preparation: The intent of this stage is to complete all pre-operational items necessary to implement the procedures and/or routes. This phase includes training, issuing notifications, automation, updating radar video maps, and processing documents. This phase ends when procedures and/or routes are submitted for publication.
  - Implementation: The purpose of the implementation phase is to implement the procedures and/or routes as designed. This phase starts with confirmation by the FWG that all required pre-implementation activities have been completed and ends when the procedures and/or routes are published and implemented.
  - Post-Implementation Monitoring and Evaluation: The purpose of the post-implementation monitoring and evaluation phase is to ensure that the new or amended procedures and/or routes perform as expected and meet the mission statement finalized during the design activities phase. Post implementation activities include collecting and analyzing data to ensure that safe and beneficial procedures and/or routes have been developed.

  Timeline: > 1 year.

- Regional Airspace and Procedure Team (RAPT) review: If approved, the RAPT assigns a priority for the project and a proposed chart date. Due to charting backlog, proposed charting dates are scheduled into 2019.
  Timeline: 30 days.

- Development of proposed chart: This is the actual preparation of the proposed chart/s.
  Timeline: 45 days

- Quality Control Review:
  Timeline: Variable

- Project is coded for Flight Management Systems:
  Timeline: 10 days

- Flight Inspection:
  Timeline: 50 days

- Flight Standards Review: this is only required for some procedural development projects.
  Timeline: 21 days.

- Proposed Procedure/s are sent for publication and distribution:
  Timeline: 38 to 60 days.

Total time: >1.5 years.

**Organization of the Response Tables**

The response tables provide the current status and associated timeline for implementation, if applicable, to all of the recommendations presented in the SFO Roundtable and Select Committee reports. For each recommendation, the process governing the implementation timeline is provided as well as references to where the recommendations may be found within the Roundtable and Select Committee reports. Details on the implementation processes are found within the Introduction section of this document.

In addition to the previously noted categories ("Addressed Concern," "Feasible and could be implemented in the Short Term,", and "Feasible and could be implemented in the Long Term"), three more categories exist in the Phase Two report to capture all of the recommendations. There are:

i. Under evaluation: Given that the feasibility of some of these recommendations have not yet been determined, a category was added to captures those recommendations that are under further evaluation in order to determine their feasibility and timelines for implementation, as appropriate.
ii. Not endorsed by the Select Committee: At this point in time, the only non-feasible recommendations were those which were not endorsed by the Select Committee. These were placed in their own category.

iii. Not under the FAA's jurisdiction: This category was added to capture those recommendations which are outside of the FAA's jurisdiction and so whose feasibility cannot be determined.

Within each group, the recommendations are then sub-grouped into areas of concern.

**RESPONSE TABLES**

# 1. Addressed Concern:

### a. BDEGA

| | | |
|---|---|---|
| **Recommendation** | | i. Study the impact of increasing in-trail spacing on the BDEGA arrival. |
| **Process** | | Addressed Concern |
| **Status** | | The FAA is continuously working to improve aircraft set up and sequencing between facilities. |
| **Reference to the Recommendation Report** | Roundtable | B 6 |
| | Select Committee | |

### b. Departures

| | | |
|---|---|---|
| **Recommendation** | | i. When RWY 01R/L is being used for departures, use 050° rather than STTIK for south-bound departures. (This is not a request to increase the use of RWYs 01 L/R). |
| **Process** | | Addressed Concern |
| **Status** | | In use per SOP. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. Reduction in airport arrivals / departures may increase usage. |
| **Reference to the Recommendation Report** | Roundtable | B 18; 24<br>C Niite ST 4<br>C 050 ST 1; LT 1<br>C Night ST 1<br>D 2.e.ii |
| | Select Committee | |

**c. Miscellaneous**

| | | |
|---|---|---|
| **Recommendation** | | i. Work with SFO Noise Abatement Office and FAA to outreach to pilots and controllers to keep aircraft over water while on approach. |
| **Process** | | Addressed Concern |
| **Status** | | Currently in use per NCT SOP. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | D 1.b.iii; 1.b.iv; 1.b.v.<br>D 1.f.iv. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Work with NCT controllers to increase controller awareness to keep TRUKN departures east of highway 101. |
| **Process** | | Air Traffic Facility Action and SFO Airport |
| **Status** | | In use per TRUKN procedure. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. Reduction in airport arrivals / departures may increase usage. |
| **Reference to the Recommendation Report** | Roundtable | D 2.e.iv |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iii. Work with San Francisco Roundtable on future changes. |
| **Process** | | Addressed Concern |
| **Status** | | NCT will continue to be an active participant in Roundtable meetings, providing leadership in seeking solutions. |
| **Reference to the Recommendation Report** | Roundtable | D 3.b.ii |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iv. Overnight Flights - generally reduce noise at night. |
| **Process** | | Addressed Concern |
| **Status** | | Ongoing discussion with SFO Airport to update Fly Quiet program. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.4 R1 |

| | | |
|---|---|---|
| **Recommendation** | | v. Assurance from FAA that aircraft will not be turned prior to nine miles DME from SFO. |
| **Process** | | Addressed Concern |
| **Status** | | In use per SOP. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | D 1.b.iii |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | vi. NIGHTTIME: SFO RT will work with airlines to encourage them to file for SFO arrivals that avoid noise sensitive areas at night. If they choose to file BDEGA, only assign them to East Downwind. |
| **Process** | | Addressed Concern |
| **Status** | | NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | C Wo CO 2<br>C Night LT 6<br>D 2.a.i. |
| | Select Committee | |

**d. NIITE/HUSSH**

| | | |
|---|---|---|
| **Recommendation** | | i. Keep aircraft on NIITE procedure, as charted, as much as possible to reduce vectoring. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Current SOP states that aircraft must remain on NIITE / HUSSH until the NIITE waypoint as much as operationally feasible. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | B 18<br>C Niite ST 2<br>D 2.a.ii.(a) |
| | Select Committee | 1.3 |

| | | |
|---|---|---|
| **Recommendation** | | ii. NIGHTTIME: Use NIITE/HUSSH 100% of the time. |
| **Process** | | Addressed Concern |
| **Status** | | In use per NIITE/HUSSH procedures. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. Reduction in airport arrivals / departures may increase usage. |
| **Reference to the Recommendation Report** | Roundtable | B 18<br>D 2.a.ii.(a) |
| | Select Committee | |

**e. SFO RWY 28 Arrivals**

| | | |
|---|---|---|
| **Recommendation** | | i. Any time traffic permits, all aircraft single stream to RWY 28R on FMS Bridge Visual/RNAV 28R/Quiet Bridge Visual. NCT to encourage the use of RNAV (RNP) Y RWY 28R and FMS Visual RWY 28R. |
| **Process** | | Addressed Concern |
| **Status** | | In use per published procedures during both daytime and nighttime operations and is used as much as operationally feasible. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. Reduction in airport arrivals / departures may increase usage. |
| **Reference to the Recommendation Report** | Roundtable | B 12; 13; 14<br>C Vis ST 2; 3<br>C Night ST 6; 8<br>D 1.f.iv. |
| | Select Committee | 2.4 R2 |

| | | |
|---|---|---|
| **Recommendation** | | ii. Runway Usage - RWY 28R as a priority. |
| **Process** | | Addressed Concern |
| **Status** | | In use per SOP. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.10 |

**f. SFO/OAK south bound departures**

| | | |
|---|---|---|
| **Recommendation** | | i. Don't turn departures until passing SSTIK/SEPDY waypoints. After the designated waypoint or intersection, continue flight up the Bay. When a left turn is to be made, a relatively wide dispersal of flight paths to the ocean is preferred. |
| **Process** | | Addressed Concern |
| **Status** | | In accordance with the Phase One document (see the FAA's Phase One Report 2.a.ii), 99% of aircraft flying the STTIK departures in October 2016 are within 1NM of the SSTIK waypoint, as per the procedure. Without ATC intervention, pilots are flying the SSTIK procedure as designed. NCT will continue to reinforce not intervening with aircraft until after the SSTIK waypoint to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | B 37<br>C Sstik ST 1<br>D 1.a.ii; 1.b.ii. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Flights should be directed to fly as high as possible over SEPDY, allowing them to be higher before turning over land, with a steady altitude increase as they make their way to the ocean. |
| **Process** | | Addressed Concern. |
| **Status** | | Flights are allowed to climb unrestricted when there are no conflicts. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | B 36; B38<br>C Sstik ST 1; 2<br>D 1.a.ii.; 1.b.ii. |
| | Select Committee | |

## 2. Feasible and could be implemented in the Short Term (less than 2 years):

**a. BDEGA**

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: BDEGA and other arrivals from the north only be assigned BDEGA East Downwind to RWY 28R. NCT Update its SOP to reflect using "Down the Bay" procedure as preferred. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Facility to update SOP to accommodate this request from the beginning of Noise Abatement Procedure hours until 6 am. |
| **Reference to the Recommendation Report** | Roundtable | B7; 11<br>C Wo ST 3<br>C Wo CO 4<br>C Night ST 7<br>D 2.a.i. |
| | Select Committee | 2.2 R2 |

| | | |
|---|---|---|
| **Recommendation** | | ii. FAA Research reasons for the continued use of the BDEGA West leg from 2010-Present |
| **Process** | | Operational Research |
| **Status** | | Research has been completed and can be presented at suitable forum. |
| **Reference to the Recommendation Report** | Roundtable | C Wo Re 3 |
| | Select Committee | |

**b. Class B**

| | | |
|---|---|---|
| **Recommendation** | | i. Class B |
| **Process** | | Rule making |
| **Status** | | Just finished informal public meetings. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.1 |

**c. Departures**

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: RWY 28R straight-out departures - determine if 3,000 ft. altitude restriction can be eliminated on the GNNRR and WESLA departures. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation<br>The GAP SEVEN departure is only for non-RNAV equipped aircraft and is already used as much as possible. This evaluation will include determining if the VFR flyway is the cause for 3,000 altitude restriction on the RWY 28 straight-out departures. |
| **Reference to the Recommendation Report** | Roundtable | B 25; 28<br>C Night ST 5<br>C ODO LT 1<br>C ODO ST 4<br>D 2.a.ii.(a)<br>2.a.ii.(b)<br>D 2.f.iv |
| | Select Committee | |

**d. Miscellaneous**

| | | |
|---|---|---|
| **Recommendation** | | i. Work with San Francisco Roundtable to determine where aircraft can be vectored with the least noise impact. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | NCT will continue to be an active participant in Roundtable meetings, providing leadership in seeking solutions. |
| **Reference to the Recommendation Report** | Roundtable | D 1.f.ii.<br>D 2.a.ii.(b). |
| | Select Committee | 2.9 R1 |

| | | |
|---|---|---|
| **Recommendation** | | ii. SFO Airport and FAA coordinate to maintain nighttime preferential runway use program. |
| **Process** | | Air Traffic Facility Action and SFO Airport |
| **Status** | | NCT will continue to be an active participant in Roundtable meetings, providing leadership in seeking solutions. Ongoing discussion with SFO Airport to update Fly Quiet program. |
| **Reference to the Recommendation Report** | Roundtable | C ODO ST 2<br>D 2.e.iii. |
| | Select Committee | |

**e. NIITE/HUSSH**

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: Design and implement NIITE southbound transition that flies up the Bay, over the Golden Gate Bridge, then South. Keep away from shore as much as possible. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | The NIITE – GOBBS transition currently exists. Increased usage is under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 19, 20, 22; 23; 33<br>C Niite ST 1, 3; LT 1<br>C Night ST 1; LT 1 |
| | Select Committee | 1.4 |

| | | |
|---|---|---|
| **Recommendation** | | ii. The south transition on the NIITE SID should also be made available to HUSSH departures from OAK. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 19 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iii. SFO RT requests timeline from the FAA for implementation of NIITE Southbound transition procedure, factoring in requirements to run the procedure through FAA Order JO 7100.41A process. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | D 1.f.iii. |
| | Select Committee | |

**f. SFO South Arrivals**

| | | |
|---|---|---|
| **Recommendation** | | i. Develop a new procedure to transition SERFR traffic to the BSR track |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Entered into the IFP Gateway. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.2 R1 |

| | | |
|---|---|---|
| **Recommendation** | | ii. Criteria for new OPD procedure that follows the BSR track |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Entered into the IFP Gateway. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.2 R2 |

## 3. Feasible and could be implemented in the Long Term (more than 2 years):

**a. BDEGA**

| | | |
|---|---|---|
| **Recommendation** | | i. Work with SFO Roundtable to route BDEGA East Leg arrivals over compatible land use. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | The use of the east downwind could be increased during certain times of the day. Update SOP and Controller briefings. Reduction in airport arrivals / departures may increase usage. |
| **Reference to the Recommendation Report** | Roundtable | C Wo LT 2 |
| | Select Committee | |

**b. Down the bay night time departures**

| | | |
|---|---|---|
| **Recommendation** | | i. Create RWY 10L/R RNAV departure that mirrors the decommissioned DUMBARTON EIGHT - keeping aircraft over the bay to gain altitude before turning. This would include an adjustment to SAHEY to keep aircraft over the bay before they turn towards their destination. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 27<br>C ODO LT 3; CO 3<br>D 2.e.i |
| | Select Committee | |

**c. Sequencing**

| | | |
|---|---|---|
| **Recommendation** | | i. Improve aircraft set up and sequencing between facilities. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | The FAA is continuously working to improve aircraft set up and sequencing between facilities. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.6 |

| | | |
|---|---|---|
| **Recommendation** | | ii. Increase In-Trail separation on SERFR, DYAMD and possibly BDEGA to reduce vectoring. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | The FAA is continuously working to improve aircraft set up and sequencing between facilities. Reduction in airport arrivals / departures may decrease the need for vectoring. |
| **Reference to the Recommendation Report** | Roundtable | B 6; 8; 11<br>C Wo ST 2; LT 2 |
| | Select Committee | |

## 4. Under Evaluation:

### a. BDEGA

| | | |
|---|---|---|
| **Recommendation** | | i. Golden Gate 140° Heading vs BDEGA 140° Track |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 4 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Increase BDEGA/DYAMD in-trail spacing to allow additional opportunities for BDEGA East Downwind. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | The FAA is continuously working to improve aircraft set up and sequencing between facilities. |
| **Reference to the Recommendation Report** | Roundtable | B 8; 11<br>C Wo ST 2; LT 2 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iii. Northern Arrivals (BDEGA) into SFO - increase East Leg percentage - ideally to pre-May 2010 levels. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 1<br>C Wo ST 1; 3<br>C Night ST 7<br>D 2.a.i. |
| | Select Committee | 2.2 R1 |

| | | |
|---|---|---|
| **Recommendation** | | iv. Determine if BDEGA west downwind aircraft can be flown at higher altitudes or over compatible land use areas. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 5 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | v. Reinstate FINSH transition/Create RNP procedure from BDEGA East Downwind to 28R Final. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 2; 3<br>C Wo ST 3; LT 1<br>C Night LT 3 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | vi. SFO RT will work with airlines and FAA to bring oceanic arrivals to the East downwind, down the bay rather than over OSI. It was also suggested that this only be a nighttime procedure. |
| **Process** | | Procedural Design/Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 7; 10; 11<br>C Wo ST 3<br>C Wo COL 2<br>C Night LT 4 |
| | Select Committee | |

**b. Departures**

| | | |
|---|---|---|
| **Recommendation** | | i. Fly the FOGGG / SAHEY procedures as published. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 26<br>C ODO ST 2<br>D 2.a.ii.(a).<br>D 2.e.i. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Assign southeast bound aircraft the TRUKN departure with a transition at TIPRE or SYRAH. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | C Sstik ST 7 |
| | Select Committee | |

**c. Down the bay night time departures**

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: Determine if RWY 10 departures can be authorized to use NIITE. If not, create one. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 21; 23<br>C Niite LT 2<br>C Night LT 2 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. NIGHTTIME: Create an OAK RWY 30 heading down the Bay at night, which is comparable to the SFO RWY 01 050º heading. . |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 24; 33<br>C 050 ST 2<br>C Night ST 4<br>D 2.e.ii. |
| | Select Committee | |

**d. MENLO**

| | | |
|---|---|---|
| **Recommendation** | | i. MENLO Waypoint - vectored traffic in vicinity of MENLO above 5K. This includes vectored SERFR and BDEGA west downwind aircraft. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 8;16<br>D 1.a.i.(a);<br>D 1.f.iv. |
| | Select Committee | 2.5 R3 |

| | | |
|---|---|---|
| **Recommendation** | | ii. VMC - aircraft should cross MENLO/vicinity of MENLO at 5,000 ft. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 16<br>D 1.a.i.(a) |
| | Select Committee | 2.5 R3 |

| | | |
|---|---|---|
| **Recommendation** | | iii. NIGHTTIME: During nighttime hours only, determine if arrivals from the south (such as on the SERFR/BSR) could instead file a route which would terminate to the east of the Bay for an approach to Runway 28R. |
| **Process / Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 9, 10<br>C Night LT 5 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iv. Assess the feasibility of establishing different points of entry, over compatible land use and at high altitudes, to the final approach into SFO on the SERFR arrival (or any replacement), such as a different waypoint east or north of MENLO, or using FAITH, ROKME or DUMBA. May involve modifying SJC Class C airspace. |
| **Process / Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.5 R5 |

| | | |
|---|---|---|
| **Recommendation** | | v. Create a Visual Approach for RWY 28L / RNAV mirror of TIPP TOE with 5,000 ft. crossing restriction at MENLO. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation. |
| **Reference to the Recommendation Report** | Roundtable | B 17 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | vi. MENLO Waypoint - design new procedure for south arrivals or assess feasibility of using a different waypoint |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Not feasible - see Phase One report (1.a.i) Procedural development criteria and safety standards require that the altitude at MENLO cannot be published to be greater than 4,000 feet MSL. That some aircraft can fly a stabilized approach at an altitude higher than 4,000 feet MSL does not justify raising the altitude requirement for all aircraft. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.5 R2 |

**e. Miscellaneous**

| | | |
|---|---|---|
| **Recommendation** | | i. The FAA to determine altitudes to turn aircraft for vector purposes that minimizes noise. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | D 2.a.i. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Increase All Altitudes |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.8 |

| | | |
|---|---|---|
| **Recommendation** | | iii. Use the Bay, Ocean and compatible land use as much as possible. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 29; 34<br>C Wo LT 2<br>C Sstik ST 4; 5<br>D 1.b.i, 1.b.ii.<br>D 2.a.ii.(b). |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iv. Determine if the minimum required altitude before a left turn can be raised. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 38<br>C Sstik LT 1 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | v. Restricted/Special Use Airspace review |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 3.2 |

| | | |
|---|---|---|
| **Recommendation** | | vi. NIGHTTIME: Aircraft from the South and West be kept higher and vectored farther out to join the final (RWY 28R). |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 5; 10<br>C Night ST 8 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | vii. Aircraft Vectoring - raise all vectoring altitudes over Mid-Peninsula. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.9 R2 |

| | | |
|---|---|---|
| **Recommendation** | | viii. Determine feasibility to Increase the Profile of Descents into SFO. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.7 |

| | | |
|---|---|---|
| **Recommendation** | | ix. After implementation of procedure overlaying the legacy BSR ground track, the FAA will meet with subcommittee to review new procedure post implementation |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Awaiting Design and Publication of BSR RNAV Overlay |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.2 R3 |

| | | |
|---|---|---|
| **Recommendation** | | x. FAA, SFO and industry continue their efforts to establish new additional overnight noise abatement procedures within the next six months. |
| **Process / Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.4 R3 |

| | | |
|---|---|---|
| **Recommendation** | | xi. Noise Measurement - adopt supplemental metrics |
| **Process** | | Rule making |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 3.3 |

| | | |
|---|---|---|
| **Recommendation** | | xii. Determine if upgraded radar equipment or map notations would be helpful to controllers to increase the use of less impactful areas when vectoring. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 41 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | xiii. Determine if any aircraft were assigned or re-assigned - via preferential runway or otherwise - from one departure or arrival procedure to a different departure or arrival. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 39 |
| | Select Committee | |

**f. NIITE/HUSSH**

| | | |
|---|---|---|
| **Recommendation** | | i. Utilize HUSSH during daytime hours to avoid conflicts with SSTIK. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 31<br>C Cndel LT 3<br>D. 1.b.ii. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. NIGHTTIME: Determine if RWY 10 departures can be authorized to use NIITE. If not, create procedure for RWY 10 with left turn to NIITE waypoint. Meanwhile, vector aircraft to mirror NIITE DP. While awaiting authorization to use NIITE departure from RWY 10, vector aircraft to mirror the NIITE DP. Review the safety concerns which resulted in the first NIITE RWY 10 transition to be removed and see if there is another departure routing that could be created, ensuring safety. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 21; 23<br>C ODO ST 1; CO 2<br>C Niite LT 2<br>C Night ST 1; 2<br>C Night LT 2<br>D 2.e.iii. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | iii. NIGHTTIME: South Transition: While formal process of creating NIITE/HUSSH transition from GOBBS to an offshore southbound course is underway, determine if aircraft can file QUIET or SILENT, and/or NCT utilize vectors, to approximate its path. One possibility: vector southbound aircraft via 330° and up the bay, then out to the ocean and south; or off SFO - 050° and down the Bay. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 18; 19; 20; 22; 23; 24; 33<br>C Cndel ST 3<br>C Niite ST 1; 3;<br>C Niite LT 1<br>C 050 LT 1<br>C Night ST 3 |
| | Select Committee | |

**g. SFO RWY 28 Arrivals**

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: During VMC - use higher altitudes and vector to single stream for 28R. Aircraft from the South and West be kept higher and vectored farther out to join the final (RWY 28R). |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | C Night ST 8 |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Raise the procedural altitudes on SERFR |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 8<br>C Wo ST 2 |
| | Select Committee | 2.6 R1 |

| | | |
|---|---|---|
| **Recommendation** | | iii. Raise the altitudes of vectored aircraft on the SERFR. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 5;8;16<br>C Wo ST 2<br>D 1.a.i.(a)., 1.f.iv. |
| | Select Committee | 2.6 R1 |

| | | |
|---|---|---|
| **Recommendation** | | iv. Raise the procedural altitudes on SERFR - ensure speed reductions occur over the Monterey Bay. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.6 R2 |

| | | |
|---|---|---|
| **Recommendation** | | v. Develop a procedure to replace the SERFR with ground tracks that minimize total people affected. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 1.2 R4 |

**h. SFO/OAK south bound departures**

| | | |
|---|---|---|
| **Recommendation** | | i. Fly over SSTIK / CNDEL to PORTE as published; avoid vectoring down the peninsula direct to waypoints beyond PORTE. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 30; 37<br>C Cndel ST 5<br>C Sstik ST 3<br>D 1.b.i.; 1.b.ii.<br>D 2.a.ii.(b). |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Depict SEPDY on controller's scope in an effort for aircraft to stay over the bay as long as possible. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | C Sstik ST 8 |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | iii. SSTIK: Determine if a reduced climb airspeed can be assigned until reaching 3,000 ft. MSL or other higher altitude; a slower airspeed will allow the aircraft to climb to a higher altitude in a shorter distance before overflying noise-sensitive land use areas. Determine if the minimum required altitude before a left turn can be raised. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | C Sstik LT 1 |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | iv. Assign the OFFSHORE departure to flights which historically were assigned the OFFSHORE departure, which guides the aircraft to the ocean and WAMMY waypoint. Wide dispersal of flight paths is preferred. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 36<br>C Sstik ST 6 |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | v. In the existing SSTIK procedure, use the Bay and ocean as well as use existing areas of compatible land use for overflights as much as possible. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 34<br>C Sstik ST 4; 5<br>D 1.b.ii. |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | vi. Define the airspace limitations over the Bay, Golden Gate and the Ocean to the west for placement of a waypoint to replace or augment PORTE and or SSTIK waypoint. Present these limitations to the Roundtable in graphic and memo format. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | D 2.a.ii.(b). |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | vii. Determine if a different southbound transition would provide more room for SSTIK departures without shifting noise to other communities. Suggestions: Create procedure from CNDEL to GOBBS, WAMMY, then PORTE or south; 'contain' CNDEL aircraft west of the eastern shore of the Bay. The intent being that the aircraft gain altitude before crossing back over residential areas. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 31; 32<br>C Cndel ST 1; 2 |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | viii. Fly the CNDEL procedure as published - don't vector aircraft early. Determine if flight tracks after CNDEL waypoint could be 'contained' to a more limited area such as west of the eastern shore of the Bay that would decrease potential conflicts with SSTIK. From CNDEL, direct aircraft to a waypoint in the Pacific Ocean - potentially GOBBS, then WAMMY before flying to PORTE. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 30; 31; 32<br>C Cndel ST 1; 4<br>C Cndel LT 1; 2; 3<br>D 1.a.ii.; 1.b.i.; 1.b.ii. |
| | Select Committee | 1.5 |

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|---|---|---|
| **Recommendation** | | ix. Use FAA Initiative Phase 1, Appendix B as baseline to compare improvements in decreasing vector traffic regarding CNDEL departures. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | D. 2.a.ii.(b). |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | x. Move SSTIK north and east as much as feasible (use SEPDY as a guide) to allow for maximum altitude gain. Remain over Pacific Ocean until attaining a high altitude. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 34; 38<br>C Sstik LT 2; COL 1<br>D 1.b.i; 1.b.ii.<br>D 2.a.ii.(b). |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | xi. Create an OFFSHORE RNAV overlay that would allow for an RNAV procedure that keeps aircraft over the water. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 35<br>C Sstik LT 3<br>D 1.a.ii. |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | xii. Similar to NIITE proposal, create a SSTIK transition to GOBBS, then WAMMY, then PORTE or south |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | B 34<br>C Night LT 1<br>C Sstik LT 4<br>D 1.b.i.; 1.b.ii. |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | xiii. Remain over the Bay / Pacific Ocean until attaining a high altitude. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | C SSTIK ST 4 |
| | Select Committee | |

**i. SJC Arrivals**

| | | |
|---|---|---|
| **Recommendation** | | i. Modify BRIXX Procedure into San Jose International Airport. The amended BRIXX should obtain the highest possible altitude where the BRIXX intersects the new arrival route from the south. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Awaiting Design of BSR RNAV Overlay |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.11 |

**j. Woodside VOR**

| | | |
|---|---|---|
| **Recommendation** | | i. Woodside VOR |
| **Process** | | Addressed Concern to the Extent Feasible |
| **Status** | | In use per SOP for Non-OTA arrivals. NCT will continue to reinforce the use of this procedure to personnel through training and briefings. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.3 R1, 2 |

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|---|---|---|
| **Recommendation** | | ii. Woodside VOR - prohibit overnight crossing below 8,000 ft. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.3 R3 |

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|---|---|---|
| **Recommendation** | | iii. Woodside VOR - modify OTA to cross VOR at 8K |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Currently under evaluation |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.3 R2 |

## 5. Recommendations which were not endorsed by the Select Committee:

**a. Miscellaneous**

| | | |
|---|---|---|
| **Recommendation** | | i. Return to Pre-NextGen Procedures, Altitudes, and Concentration. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.17 |

**b. SFO South Arrivals**

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|---|---|---|
| **Recommendation** | | i. Modify NRRLI Waypoint on the First Leg of SERFR. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.12 |

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|---|---|---|
| **Recommendation** | | ii. Redirect Southern Arrivals (SERFR) to an Eastern Approach into SFO. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee, since this reduces the opportunity to shift aircraft from the BDEGA west leg transition. The FAA does not have the expertise to resolve a regional noise concern through the creation/amendment of procedures. The FAA respectively requests that the Round Table and Select Committee coordinate their response, so that the FAA may respond to a request which benefits all community stakeholders. |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.14 |

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|---|---|---|
| **Recommendation** | | iii. Herringbone Approach to SFO Arrivals. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.16 |

**c. SJC Arrivals**

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|---|---|---|
| **Recommendation** | | i. San Jose International Airport Reverse Flow: Aircraft Arrivals. Reverse flow conditions at SJC have arrival aircraft at lower altitudes to the west of SJC. Can these arrivals be shifted to the east of SJC? Not endorsed since this shift of arrivals equates to a shifting of noise to another community. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.13 |

**d. Woodside VOR**

| | | |
|---|---|---|
| **Recommendation** | | i. Fan-in Overseas Arrivals (OCEANIC) into SFO. |
| **Process** | | |
| **Status** | | Not Endorsed by the Select Committee |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.15 |

## 6. Recommendations which were not endorsed by the FAA:

### a. SFO RWY 28 Arrivals

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|---|---|---|
| **Recommendation** | | i. Research feasibility of dual offset RNAV to both RWY 28L and RWY 28R. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Not feasible - see Phase One report (1.b.iii)<br>The preferential arrival runway is RWY 28R when in single stream. If the operational level necessitate simultaneous arrivals, then an offset arrival to RWY 28L would conflict with both the straight in and offset RWY 28R approaches, making both untenable. |
| **Reference to the Recommendation Report** | Roundtable | B 15<br>C Vis LT 1<br>D 1.b.iii. |
| | Select Committee | |

### b. Down the bay night time departure

| | | |
|---|---|---|
| **Recommendation** | | i. NIGHTTIME: Use SFO's longstanding preferred departure runways: RWY 10 R/L, then RWY 28 R/L (TRUKN or NIITE), then RWY 01 R/L. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Increasing the use of RWY 10 was stated not to be feasible in the Phase One report (2.e.i). However, NCT will continue to be an active participant in Round Table meetings, providing leadership in seeking solutions. Ongoing discussion with SFO Airport to update Fly Quiet program. |
| **Reference to the Recommendation Report** | Roundtable | B 26<br>D 2.e.iii.; 3.a.i. |
| | Select Committee | |

| | | |
|---|---|---|
| **Recommendation** | | ii. Create a RWY 10L/R departure procedure with an immediate left turn to deconflict with opposite direction aircraft. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Not feasible - In August 2013, the requirements associated with Opposite Direction Operations (ODO) changed increasing the complexity of implementing ODO procedures. The creation of a RWY 10 departure procedure with an immediate left turn would not absolve the requirement to utilize the updated ODO procedures. |
| **Reference to the Recommendation Report** | Roundtable | C ODO LT 2 |
| | Select Committee | |

**c. MENLO**

| | | |
|---|---|---|
| **Recommendation** | | vii. MENLO Waypoint - review increasing RWY 28L glide slope. Increase SFO RWY 28 Glide Slope - The recommendations are to review and determine feasibility which could be done in the near term. |
| **Process** | | Air Traffic Facility Action |
| **Status** | | Not feasible - see Phase One report (1.a.i) |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.5 R4 |

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|---|---|---|
| **Recommendation** | | viii. MENLO Waypoint - altitude at MENLO above 5,000 ft. |
| **Process** | | Procedural Design / Amendments and IFP Gateway Entry |
| **Status** | | Not feasible - see Phase One report (1.a.i) |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.5 R1 |

## 7. Recommendations which were not the FAA's action:

### a. Down the bay night time departures

| | | |
|---|---|---|
| **Recommendation** | | i. SFO Airport and RT educate dispatchers and pilots of the importance / impact of 10L/R ODO procedures on impacted communities. |
| **Process** | | SFO Airport and SFO Roundtable |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | C ODO ST 3 |
| | Select Committee | |

### b. Miscellaneous

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|---|---|---|
| **Recommendation** | | i. Allocate funds to commission an updated Technical Study of back blast noise from takeoffs at SFO. |
| **Process** | | SFO Airport |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | B 40 |
| | Select Committee | |

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|---|---|---|
| **Recommendation** | | ii. Who Makes Recommendations to Whom |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 4.1 |

| | | |
|---|---|---|
| **Recommendation** | | iii. Ensuring Compliance |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 4.3 |

| | | |
|---|---|---|
| **Recommendation** | | iv. Airbus A320 Aircraft Family Wake Vortex Generators Retrofit |
| **Process** | | Directed to Industry |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 2.1 |

| | | |
|---|---|---|
| **Recommendation** | | v. Need for an Ongoing Venue to Address Aircraft Noise Mitigation - permanent committee. |
| **Process** | | Directed to a follow-up committee |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 3.1 R1, R2 |

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|---|---|---|
| **Recommendation** | | vi. Capacity Limitations |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 3.4 |

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|---|---|---|
| **Recommendation** | | vii. Aircraft Speed |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | |
| | Select Committee | 3.5 |

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|---|---|---|
| **Recommendation** | | viii. Need for Before/After Noise Monitoring - monitor noise before and after implementation |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | C Sstik CO 2 |
| | Select Committee | 4.2 R1 |

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|---|---|---|
| **Recommendation** | | ix. Need for Before/After Noise Monitoring - implement regional noise monitoring stations |
| **Process** | | |
| **Status** | | |
| **Reference to the Recommendation Report** | Roundtable | C Sstik CO 2 |
| | Select Committee | 4.2 R2 |