



Meeting Packet

Regular Meeting

Meeting No. 317

Wednesday, February 6, 2019 - 7:00 p.m.

David Chetcuti Community Room – Millbrae City Hall
450 Poplar 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 / James A. Castaneda, AICP, Roundtable Coordinator

2. Elections of Roundtable Chairperson for Calendar Year 2019

ACTION

Elizabeth Lewis, Roundtable Chairperson

3. Elections of Roundtable Vice-Chairperson for Calendar Year 2019

ACTION

Roundtable Chairperson

4. Approval of Resolution 19-01: Designating Roundtable Meeting Dates, Time and Place for Calendar Year 2019

ACTION

Roundtable Chairperson

1. Memo and Resolution

pg. 15

5. 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

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.

6. Roundtable Regular Meeting Minutes for October 3, 2018 and December 5, 2018

ACTION

1. October 3, 2018 Regular Meeting Minutes

pg. 17

2. December 5, 2018 Regular Meeting Minutes

pg. 21

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CONSENT AGENDA (continued)

7. Airport Director's Reports for November & December 2018, Fly Quiet Report Q3 2018

ACTION

- 1. November Director's Report pg. 25
- 2. December Director's Report pg. 31
- 3. Fly Quiet Report Q3 pg. 37

REGULAR AGENDA

8. Discussion with FAA Regarding Questions Provided from Roundtable Chair, email to FAA dated November 9, 2018 (*item may be postpone)

INFORMATION

FAA Representative(s) if able to attend
Justin Cook, Roundtable Technical Consultant

- 1. Email from Roundtable Chairperson dated November 9, 2018 pg. 49

9. SFO Updates

INFORMATION

Doug Yakel, Public Information Officer – San Francisco International Airport

10. Title 21 Update

INFORMATION

Bert Ganoung, Noise Abatement Manager – San Francisco International Airport

- 1. Presentation pg. 52

11. Update Ground-Based Noise Ad-Hoc Subcommittee

INFORMATION

Ricardo Ortiz, City of Burlingame Representative

12. Subcommittee Appointments

INFORMATION / ACTION

Roundtable Chairperson

- 1. Memo pg. 59

13. Upcoming Noise 101

INFORMATION

James Castañeda, Roundtable Coordinator

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OTHER MATTERS

14. Aviation Noise News and Updates

INFORMATION

Justin Cook, Roundtable Technical Consultant

15. Member Communications / Announcements

INFORMATION

Roundtable Members and Staff

16. Adjourn

ACTION

Elizabeth Lewis, Roundtable Chairperson

Correspondences / Additional Reports

- | | |
|---|--------|
| 1. Hillsborough Short-Term Noise Monitoring Report | pg. 63 |
| 2. Portola Valley 4Q 2018 Noise Monitoring Report | pg. 67 |
| 3. Woodside 4Q 2018 Noise Monitoring Report | pg. 71 |
| 4. FAA Instrument Flight Procedures (IFP) Information Gateway Review Update | pg. 75 |



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:

RICARDO ORTIZ
Representative, City of BURLINGAME
rortiz@burlingame.org

Roundtable Coordinator:

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



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:

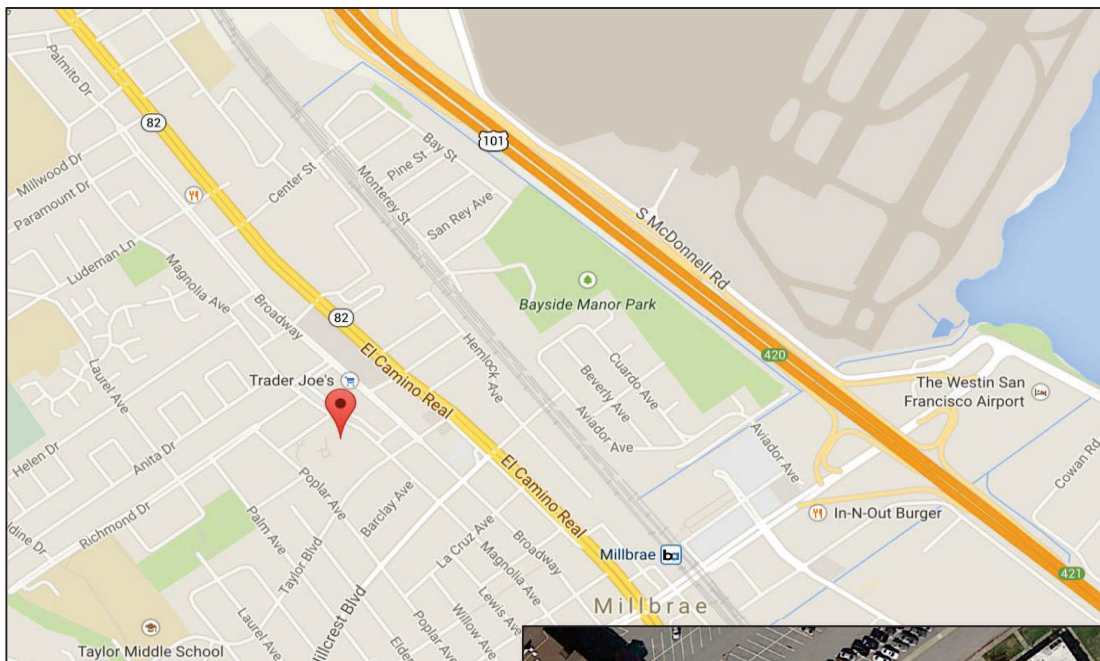
“No state or political subdivision thereof and no interstate agency or other political agency of two or more states shall enact or enforce any law, rule, regulation, standard, or other provision having the force and effect of law, relating to rates, routes, or services of any air carrier having authority under subchapter IV of this chapter to provide air transportation.”

(Source: 49 U.S.C. A. Section 1302(a)(1)).

Meeting Location

**David Chetcuti Community Room
450 Poplar Avenue - Millbrae, CA 94030**

Access through Millbrae Library parking lot on Poplar Avenue





Member Roster

February 2019

CITY AND COUNTY OF SAN FRANCISCO BOARD OF SUPERVISORS

Ahsha Safai, Supervisor

CITY AND COUNTY OF SAN FRANCISCO MAYOR'S OFFICE

David Takashima, (Appointed)

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, Council Member

CITY OF BRISBANE

Terry O'Connell, Council Member

Alternate: Madison Davis, Council Member

CITY OF BURLINGAME

Ricardo Ortiz, Council Member

CITY OF DALY CITY

Pamela DiGiovanni, Council Member

CITY OF FOSTER CITY

Sanjay Gehani, Council Member

Alternate: Sam Hindi, Mayor

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

Alternate: Wayne Lee, Mayor

CITY OF PACIFICA

Vacant

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

Marty Medina, Council Member

Alternate: Rico Medina, Council Member

CITY OF SAN CARLOS

Ron Collins: Council Member

Alternate: Matt Grocott, Council Member

CITY OF SAN MATEO

Diane Papan, Council Member

CITY OF SOUTH SAN FRANCISCO

Mark Addiego, Council Member

Alternate: Pradeep Gupta, Council Member

TOWN OF WOODSIDE

Chris Shaw, Council Member

Alternate: Deborah Gordon, 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 A. Castañeda, AICP, Roundtable Coordinator

Gene Reindel, Technical Consultant (HMMH)

Justin Cook, Technical Consultant (HMMH)

Adam Scholten, Technical Consultant (HMMH)

SAN FRANCISCO INTERNATIONAL AIRPORT NOISE ABATEMENT STAFF

Bert Ganoung, Noise Abatement Manager

David Ong, Noise Systems Manager

Nastasja von Conta, Senior Noise Abatement Specialist

Anthony Carpeneti, Noise Abatement Specialist

Anneliese Taing, Noise Abatement Specialist

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.

AGL – Above Ground Level, is a height measured with respect to the ground.

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

CDA - Continuous Descent Approach, see also OPD.

Center – See ARTCC.

Cloud Ceiling – The height above the earth's surface of the lowest layer of clouds that is reported as "broken" or "overcast." Is reported in feet AGL.

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 (7:00pm – 9:59pm) and nighttime (10:00pm – 6:59am) 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 though there were ten. This results in a 4.77 and 10 decibel 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.

Delay Vectors - When ATC assigns an aircraft a heading that takes it off course, before bringing it back on course. Delay vectors may be used for many reasons such as for aircraft traffic or to create spacing between aircraft.

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, Environmental 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.

Final Approach – The last leg in an aircraft's approach to landing, when the aircraft is lined up with the runway and is descending for landing.

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.

Go-Around - an aborted landing of an aircraft that is on final approach.

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

OAPM - Optimization of Airspace and Procedures in the Metroplex – This is a part of the FAA's Next Generation of air traffic control plans for 21 areas with multiple airports in the United States.

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.

OPD – Optimized Profile Descent – An efficient, reduced power method by which aircraft approach airports for landing. It is designed to reduce level off segments during descent, reducing fuel consumption and noise.

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.

SID - Standard Instrument Departure - An aeronautical chart designed to expedite clearance delivery and to facilitate transition between takeoff and enroute operations.

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

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

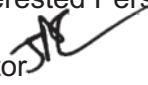
**SFO Aircraft Noise Abatement Office mailing address is:
P.O. Box 8097, San Francisco, CA 94128**

Phone:	650.821.5100
Fax:	650.821.6777
Noise Complaints:	650.821.4736
Toll Free Noise Complaints:	877.206.8290
Noise Complaint E-mail:	sfo.noise@flysfo.com
Airport Web Page:	www.flysfo.com
Noise Abatement Web Page:	www.flyquietsfo.com
Roundtable Web Page:	www.sforoundtable.org



January 30, 2019

TO: Roundtable Representatives, Alternatives, and Interested Persons

FROM: James A. Castañeda, AICP, Roundtable Coordinator 

SUBJECT: Review/Approval of Resolution 19-01: Designating Roundtable Meeting Dates, Time, and Place for Calendar Year 2019

RECOMMENDATION:

Adopt the attached Roundtable Resolution No. 19-01 that specifies the date, time, and place for holding Regular Meetings of the SFO Airport/Community Roundtable, as required by the Brown Act and the Roundtable Bylaws for calendar year 2019.

BACKGROUND:

California Government Code Section 54950 et seq., commonly known as the Ralph M. Brown Act (Open Meeting Law for local government bodies) and the adopted Roundtable Bylaws, as amended, require the Roundtable to establish the date, time, and place for holding its Regular Meetings. The amended Roundtable Bylaws state the following:

“The Roundtable membership shall establish, by adopted resolution, the date, time and place for Regular Roundtable Meetings. Such resolution shall be adopted at the February Regular Meeting or at the first Regular Meeting held thereafter each year.” (Roundtable Bylaws Article VI, Paragraph 1).

Special meetings, workshops, and other Roundtable related activities may be held as needed, in accordance with the relevant provisions in the Brown Act and the adopted Roundtable Bylaws.

DISCUSSION:

The proposed dates are reflective of maintaining six meetings per fiscal year as practiced since 2016. Regular Meetings for calendar year 2019 are to be held at 7:00pm on the first Wednesday of the following months: February, April, June, August, October and December, and therefore with adoption of Roundtable Resolution 19-01, the Regular Meetings would be scheduled as follows:

- **February 6, 2019**
- **April 3, 2019**
- **June 5, 2019**
- **August 7, 2019**
- **October 2, 2019**
- **December 4, 2019**

Attached: Resolution 19-01



RESOLUTION No. 19-01

* * * * *

A RESOLUTION PROVIDING FOR THE DAY, TIME, AND PLACE FOR HOLDING REGULAR MEETINGS OF THE SAN FRANCISCO INTERNATIONAL AIRPORT/COMMUNITY ROUNDTABLE FOR CALENDAR YEAR 2019

WHEREAS, the San Francisco International Airport/Community Roundtable (Roundtable) was established in 1981, via a Memorandum of Understanding (MOU), to serve as a public forum to address community noise issues related to aircraft operations at San Francisco International Airport, and

WHEREAS, Article VI, Paragraph I of the adopted Roundtable Bylaws, as amended, requires the Roundtable to establish, by resolution, the date, time, and place for Regular Roundtable Meetings and that such resolution shall be adopted at the February Regular Meeting or at the first Regular Meeting held thereafter, and

WHEREAS, the Regular Meetings of the Roundtable are held in accordance with the relevant provisions of the Ralph M. Brown Act, which requires the Roundtable to establish a regular day, time, and place for holding its Regular Meetings (California Government Code Section 54950 et seq.).

NOW, THEREFORE BE IT RESOLVED, that the Regular Meetings of the Roundtable shall be scheduled as follows: the first Wednesday of February, April, June, August, October, and December 2018, at 7:00 p.m. in the David Chetcuti Community Room at Millbrae City Hall, 450 Poplar Avenue, Millbrae, California. Special Meetings and workshops may be scheduled and held, as needed, in accordance with the relevant provisions in the Brown Act and the adopted Roundtable Bylaws.

* * * * *

PASSED, APPROVED, AND ADOPTED ON FEBRUARY 6, 2019.

Roundtable Chairperson

SFO Airport/Community Roundtable

Meeting No. 315 Action Minutes

Wednesday, October 3, 2018

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 7:00 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

Ivar Satero – City and County of San Francisco Airport Commission
Dave Pine – County of San Mateo Board of Supervisors
Elizabeth Lewis – Town of Atherton
Douglas Kim – City of Belmont
Terry O’Connell – City of Brisbane
Ricardo Ortiz – City of Burlingame
Alvin Royse – Town of Hillsborough
Ann Schneider – City of Millbrae
Sue Digre – City of Pacifica
Ann Wengert – Town of Portola Valley
Marty Medina – City of San Bruno
Ron Collins – City of San Carlos
Diane Papen – City of San Mateo
Mark Addiego – City of South San Francisco

REGULAR MEMBERS ABSENT

City and County of San Francisco Board of Supervisors
City and County of San Francisco Mayor’s Office
C/CAG Airport Land Use Committee (ALUC)
City of Daly City
City of Half Moon Bay
City of Foster City
City of Menlo Park
City of Redwood City
Town of Woodside

ROUNDTABLE STAFF

James A. Castañeda, AICP – Roundtable Coordinator
Gene Reindel – Roundtable Consultant (HMMH)

SAN FRANCISCO INTERNATIONAL AIRPORT STAFF

Bert Ganoung, Noise Abatement Manager
Anthony Carpeneti, Noise Abatement Specialist
Wing Kwok, Noise Abatement Intern

2. Introduction of Guests and Members of the FAA

Roundtable Chairperson Elizabeth Lewis welcomed Mindy Wright and Barry Davis of the FAA for attending.

3. Public Comments on Items NOT on the Agenda

One member of the public spoke during public comments:

Doreen Gotelli

**Per the Roundtable Chair, item 8 was taken out of order.*

8. Discussion with FAA Regarding Questions Provided from Roundtable Chair, email to FAA dated August 31, 2018

Mindy Wright and Barry Davis from the FAA's Western Service Center answered questions that were provided to the FAA on August 31, 2018 from the Roundtable Chairperson. Ms. Wright attempted to address follow-up questions from Roundtable members and the Roundtable Consultant, however some were unable to be answered since it required additional research beyond the scope of the original questions.

4. Review of Roundtable Meeting Action Minutes for June 6, 2018 and August 1, 2018

5. Airport Director's Reports for June, July and August 2018, Fly Quiet Report Q2 2018

ACTION: Alvin Royse **MOVED** approval of the consent agenda items. The motion was seconded by Ricardo Ortiz and **CARRIED**, unanimously.

6. SFO Updates

7. Ground-Based Augmentation System (GBAS) updates

Ivar Satero, San Francisco International Airport (SFO) Director, provided an overview of the general operations at SFO, status of Ground-Based Augmentation System (GBAS) installation process, and an update on the Second Chance and Replacement Noise Insulation Program.

9. Development of Future Topics of Discussion

Roundtable Chairperson Elizabeth Lewis provided background on the topic and solicited input from members to streamline how future questions are devolved and provided to the FAA in advance of a meeting.

10. Follow-Up from September 13, 2018 Technical Working Group meeting, Discuss Possible Future Meeting Time to Accommodate More Members' Schedules

Roundtable Technical Consultant Gene Reindel provided an overview of the Technical Working Group meeting that occurred on September 13, 2018.

11. Recommendation of Creating a Subcommittee to Investigate Ground-based Noise Impacts at SFO

Roundtable Vice-Chairperson Ricardo Ortiz provided a brief overview of the proposal to create a subcommittee to investigate the sources of ground-based noise impacts from SFO and research mitigation. Members Terry O'Connell, Dave Pine, Ann Schneider, Alvin Royse, and Sue Digre volunteered to be part of the ad-hoc subcommittee.

12. Roundtable Annual Work Plan status

Roundtable Coordinator James Castañeda indicated future work to be conducted on the Work Plan.

13. Announcement of Congresswoman Speier's Town Hall Meeting Regarding Airplane Noise on October 23, 2018

Roundtable Chairperson Lewis announced an upcoming town hall meeting by Congresswoman Jackie Speier's on October 23, 2018 and encouraged members of the public to attend.

14. Review Letter from Senators Feinstein, Harris, Cardin, and Van Hollen, Re FAA Reauthorization Bill

Roundtable Chairperson Lewis directed Roundtable members to a letter in their packet from Senators Feinstein, Harris, Cardin, and Van Hollen regarding the FAA Reauthorization Bill. Roundtable Technical Consultant Gene Reindel also provided an update regarding the progress of the bill.

15. Discussion, Monitoring FAA Published Flight Procedures and Protentional Community Impacts

Roundtable Consultant Gene Reindel indicated that periodic updates will be provided to the Roundtable from the IFP Gateway.

16. Aviation Noise News and Updates

This item was postponed due to time.

17. Member Communications / Announcements

Members announced upcoming community events in their respective cities.

18. Adjourn

Chairperson Lewis adjourned the meeting at 9:38 p.m.

Roundtable action minutes 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.

SFO Airport/Community Roundtable

Meeting No. 316 Action Minutes

Wednesday, December 5, 2018

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

Ivar Satero – City and County of San Francisco Airport Commission
Dave Pine – County of San Mateo Board of Supervisors
Carlo Ford - C/CAG Airport Land Use Committee (ALUC)
Elizabeth Lewis – Town of Atherton
Julia Mates – City of Belmont
Terry O’Connell – City of Brisbane
Ricardo Ortiz – City of Burlingame
Harvey Rarback – City of Half Moon Bay
Alvin Royse – Town of Hillsborough
Anne Oliva – City of Millbrae
Sue Digre – City of Pacifica
Ann Wengert – Town of Portola Valley
Janet Borgens – City of Redwood City
Marty Medina – City of San Bruno
Ron Collins – City of San Carlos
Diane Papen – City of San Mateo

REGULAR MEMBERS ABSENT

City and County of San Francisco Board of Supervisors
City and County of San Francisco Mayor’s Office
City of Daly City
City of Foster City
City of Menlo Park
City of South San Francisco
Town of Woodside

ROUNDTABLE STAFF

James A. Castañeda, AICP – Roundtable Coordinator
Justin Cook – Roundtable Consultant (HMMH)

SAN FRANCISCO INTERNATIONAL AIRPORT STAFF

Bert Ganoung, Noise Abatement Manager
David Ong, Noise Abatement Systems Manager
Anthony Carpeneti, Noise Abatement Specialist
Annelises Taing, Noise Abatement Specialist

2. Introduction of Guests and Members of the FAA

The FAA was not in attendance due to Presidential order that dismissed federal employees for the day in observance of the recent passing of President George H.W. Bush.

3. Public Comments on Items NOT on the Agenda

A total of seven members of the public spoke during public comments:

Doreen Gotelli
Charlie Wombeck
Michael Harris
Mark Shull
Mary Jo Freemont
Elizabeth Lopez
Ken Miles

4. Airport Director's Reports for September 2018

ACTION: Terry O'Connell **MOVED** approval of the Airport Director's Reports for September 2018. The motion was seconded by Anne Oliva and **CARRIED**, unanimously.

5. Discussion with FAA Regarding Questions Provided from Roundtable Chair, email to FAA dated November 9, 2018

Member from the FAA team where not in attendance to discuss the item. It's anticipated they'll be present at the January 10, 2019 Technical Working Group meeting to discuss this item.

6. SFO Updates

Airport Director Ivar Satero provided an overview of the general operations at SFO, status of Ground-Based Augmentation System (GBAS) installation process, and an update on the Second Chance and Replacement Noise Insulation Program. Mr. Satero provided clarification for those members of the public who had questions.

7. Follow-Up from November 8, 2018 Technical Working Group meeting

Roundtable Technical Consultant Justin Cook provided an overview of the Technical Working Group meeting that occurred on November 8, 2018.

8. Adoption of the Ground-Based Noise Ad-Hoc Subcommittee Scope of Work

Roundtable Vice-Chairperson Ricardo Ortiz provided an overview of the Ground-Based Noise Ad-Hoc Subcommittee meeting held in early November and introduced the scope of work the group will be utilizing.

ACTION: Sue Digre **MOVED** approval of the Ground-Based Noise Ad-Hoc Subcommittee Scope of Work. The motion was seconded by Janet Borgens and **CARRIED**, unanimously.

9. Consideration and Adoption of Roundtable FY2018-2019 Budget

Roundtable Coordinator James Castañeda gave an overview of the proposed budget for FY2018-2019.

ACTION: Ann Wengert **MOVED** approval of the FY2018-2019 Roundtable budget. The motion was seconded by Carol Ford and **CARRIED**, unanimously.

10. Adoption of a Resolution Recognizing Sue Digre

Roundtable Chairperson Lewis presented the Roundtable with a resolution recognizing Sue Digre for her many years on the Roundtable as a representative from the City of Pacifica.

ACTION: Janet Borgens **MOVED** approval of the Roundtable Resolution 18-03 recognizing Sue Digre. The motion was seconded by Ricardo Ortiz and **CARRIED**, unanimously.

11. Aviation Noise News and Updates

Roundtable Technical Consultant Justin Cook provided a brief recap of relevant aviation noise news to the Roundtable.

12. Member Communications / Announcements

None

13. Adjourn

Chairperson Lewis adjourned the meeting at 8:40 p.m.

Roundtable action minutes 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.

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Airport Director's Report

Presented at the February 6, 2019
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
November 2018



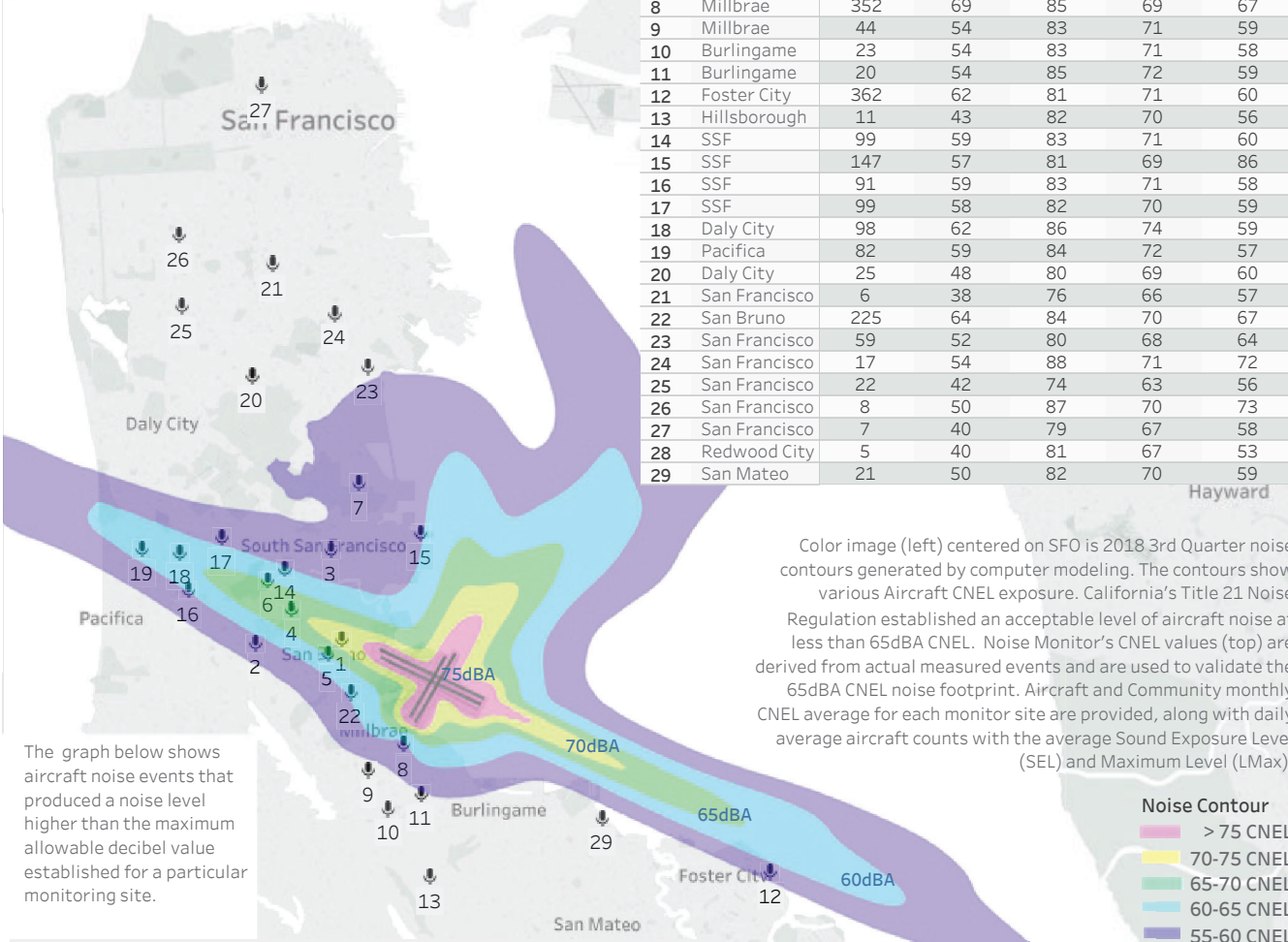
San Francisco
International
Airport

Aircraft Noise Monitoring System

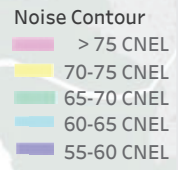
November 2018

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 quarterly 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.

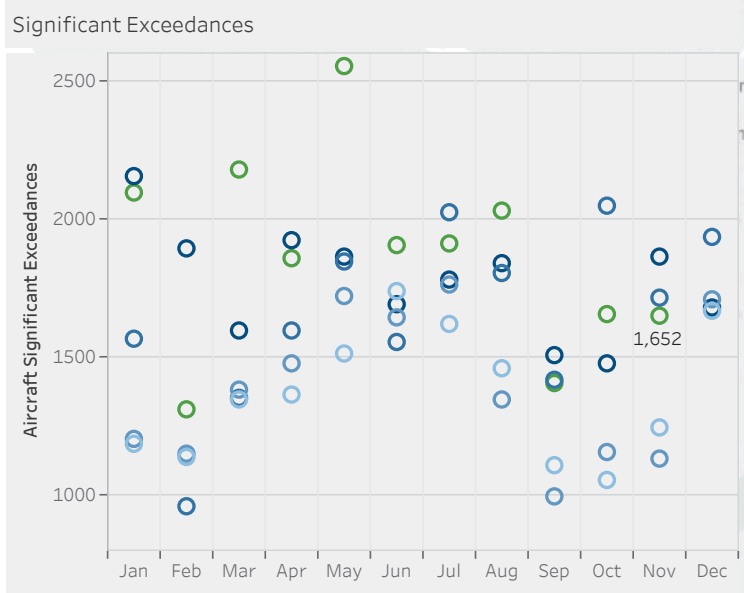
Site	City	Noise Events (AVG Day)	Aircraft			City
			CNEL (dBA)	SEL (dBA)	LMax (dBA)	
1	San Bruno	205	73	93	77	70
3	SSF	52	54	79	67	64
4	SSF	116	68	91	78	62
5	San Bruno	138	66	88	75	65
6	SSF	104	64	87	75	59
7	Brisbane	20	50	80	69	58
8	Millbrae	352	69	85	69	67
9	Millbrae	44	54	83	71	59
10	Burlingame	23	54	83	71	58
11	Burlingame	20	54	85	72	59
12	Foster City	362	62	81	71	60
13	Hillsborough	11	43	82	70	56
14	SSF	99	59	83	71	60
15	SSF	147	57	81	69	86
16	SSF	91	59	83	71	58
17	SSF	99	58	82	70	59
18	Daly City	98	62	86	74	59
19	Pacifica	82	59	84	72	57
20	Daly City	25	48	80	69	60
21	San Francisco	6	38	76	66	57
22	San Bruno	225	64	84	70	67
23	San Francisco	59	52	80	68	64
24	San Francisco	17	54	88	71	72
25	San Francisco	22	42	74	63	56
26	San Francisco	8	50	87	70	73
27	San Francisco	7	40	79	67	58
28	Redwood City	5	40	81	67	53
29	San Mateo	21	50	82	70	59



Color image (left) centered on SFO is 2018 3rd Quarter noise contours generated by computer modeling. The contours show various Aircraft CNEL exposure. California's Title 21 Noise Regulation established an acceptable level of aircraft noise at less than 65dBA CNEL. Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along with daily average aircraft counts with the average Sound 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.

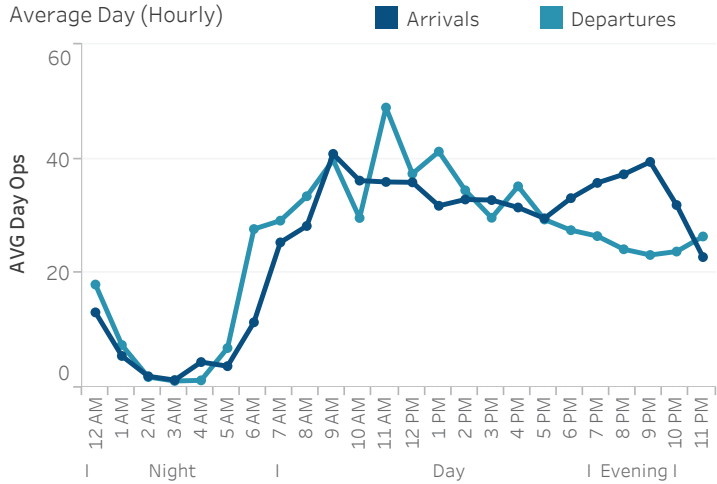


Note: Site 2 is currently not operational.

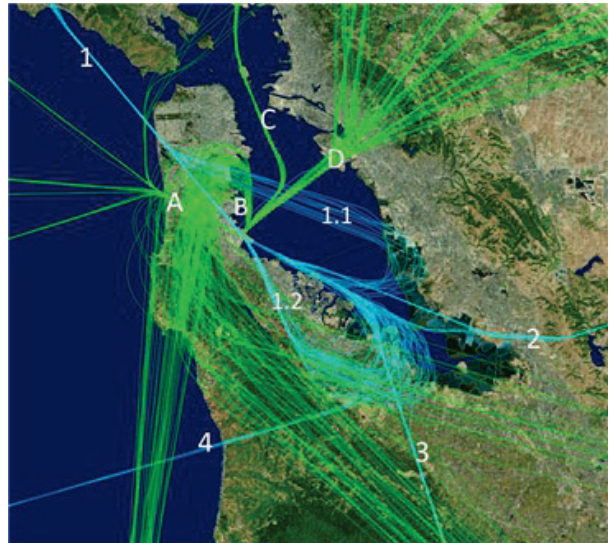
Monthly Operations Summary

November 2018

36,156	1,205	38,243	-3.9%
Monthly Operations	Average Daily Operations	12 Month AVG	YOY Growth



Major Arrival and Departure Route Pattern (West Flow)



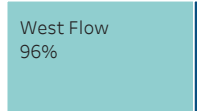
Departures

A. GAP	19%
B. SSTIK	32%
C. NIITE	8%
D. TRUKN RWY 01	39%
D. TRUKN RWY 28	2%

Arrivals

1. BDEGA	27%
2. DYAMD	40%
3. SERFR	28%
4. OCEANIC	5%

Los Angeles	Seattle
8%	6%

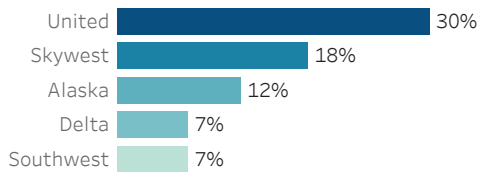


West Flow is depicted in the above image and is a predominate flow at SFO

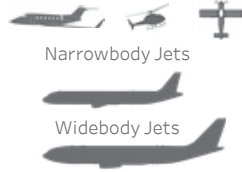
Down the Bay vs Peninsula

1.1 BDEGA East	20%
1.2 BDEGA West	80%

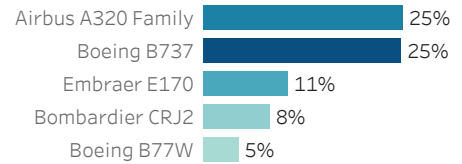
Airlines with the Most Operations



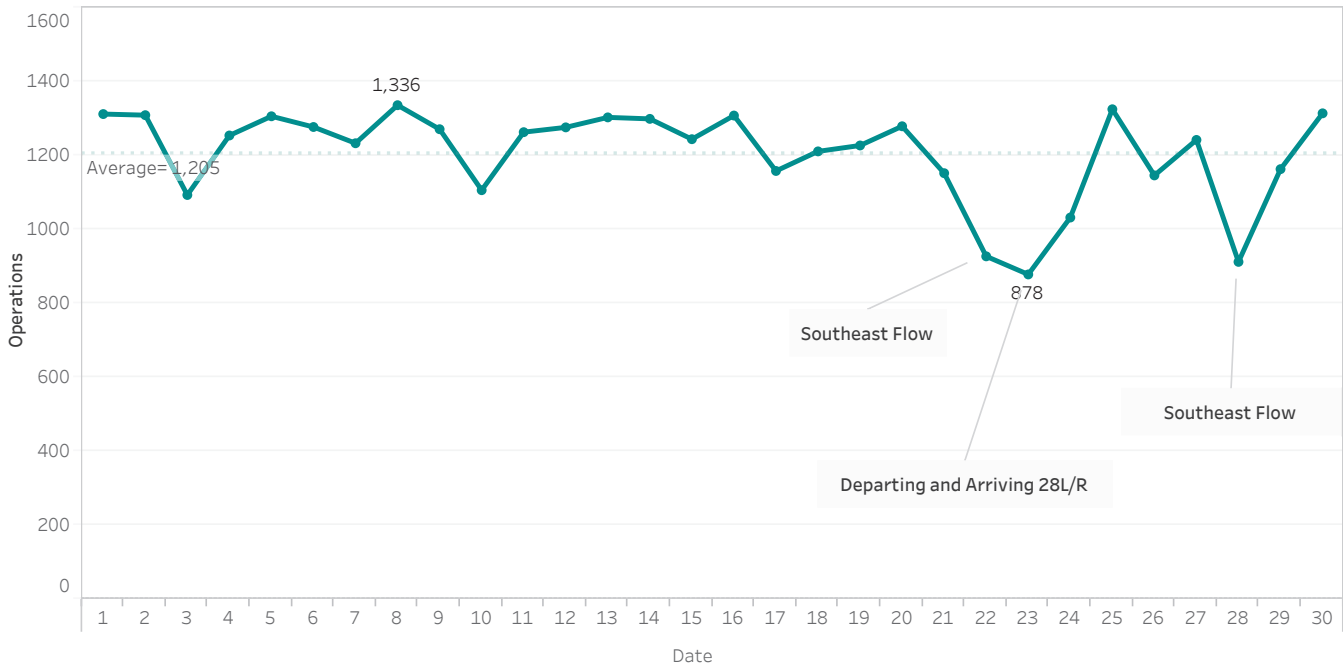
Business Jets / Helicopters / GA 17%



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. (Percent [%] rounded to nearest whole number)

Runway Utilization (all hours)

	Arrivals		Departures	
01 L/R	0%	1	78%	13,087
10 L/R	0%	1	3%	440
19 L/R	4%	618	1%	207
28 L/R	96%	16,175	18%	3,116

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

	Departures	
10 L/R	4%	20
01 L/R	51%	249
28 L/R	42%	205
19 L/R	3%	14

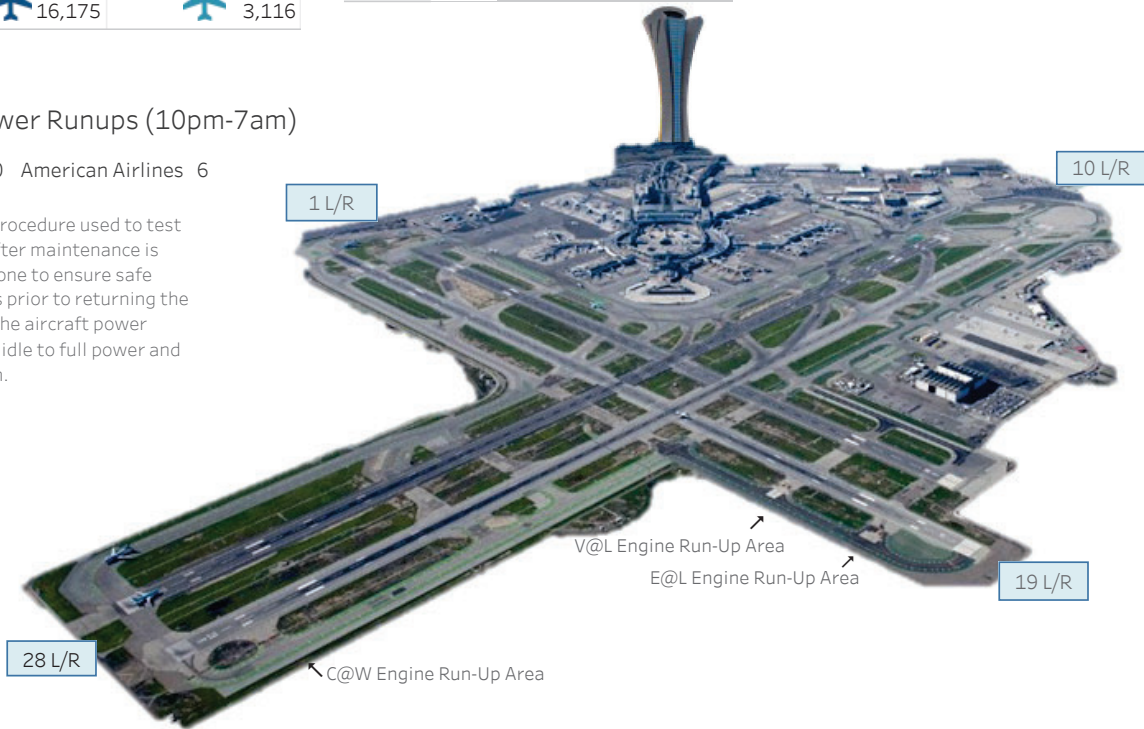
28 L vs R

Arrivals	
28L	28R
45%	55%
Night (10 pm - 7 am)	
34%	66%

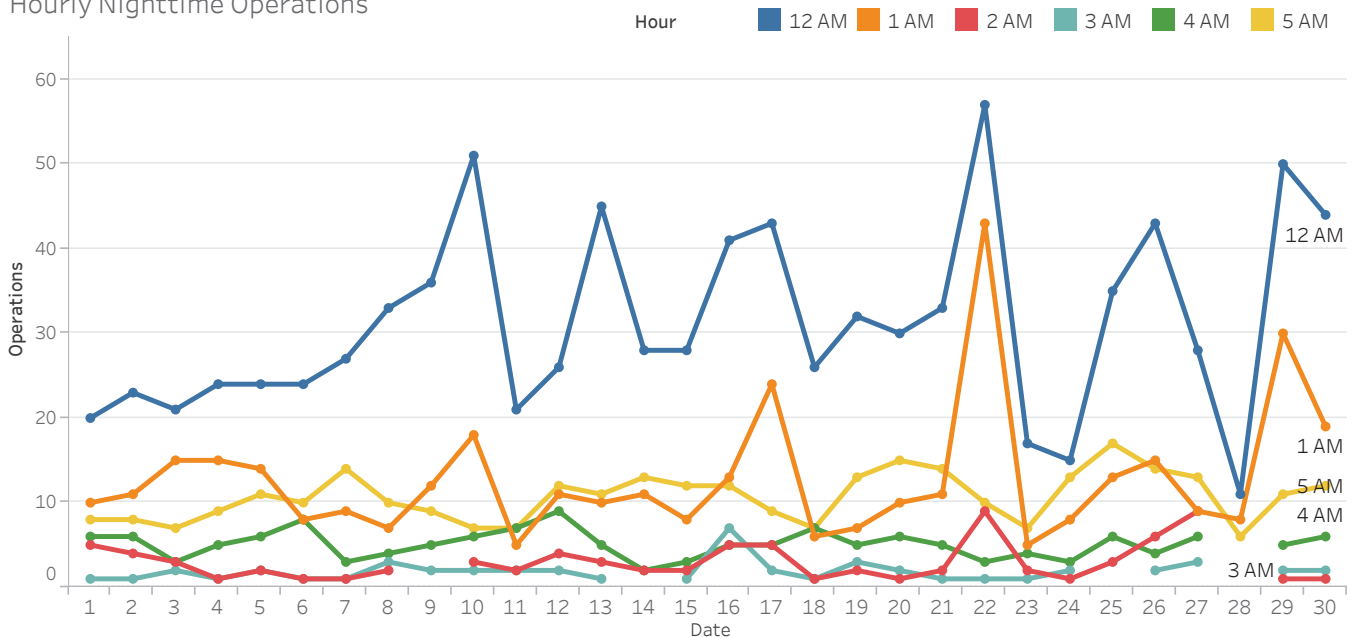
Nighttime Power Runups (10pm-7am)

United Airlines 10 American Airlines 6

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

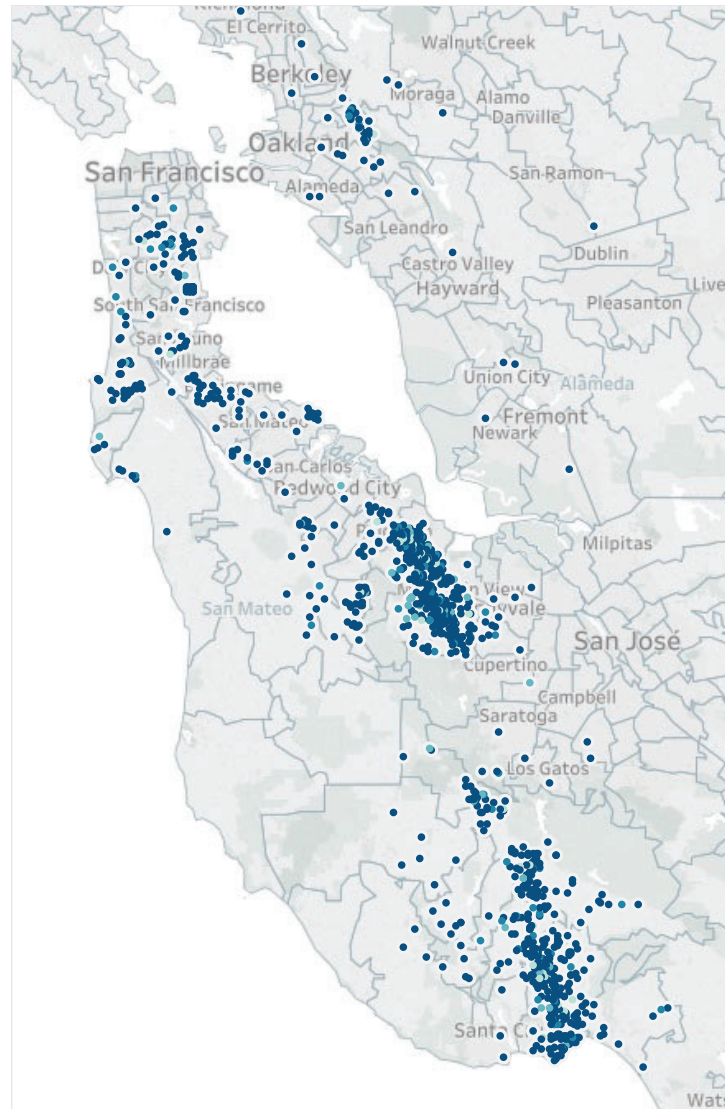


November 2018

Noise Reporters / Noise Reports

	Noise Reporters	Noise Reports
Atherton	5	835
Belmont	4	104
Brisbane	22	1,349
Burlingame	19	441
Daly City	7	899
El Granada	3	535
Foster City	9	74
Half Moon Bay	7	700
Hillsborough	4	10
Menlo Park	20	1,061
Millbrae	5	16
Pacifica	42	3,780
Portola Valley	34	3,887
Redwood City	15	1,800
San Bruno	10	1,130
San Carlos	2	126
San Francisco	32	5,850
San Mateo	11	718
South San Francisco	5	47
Woodside	10	1,036
Alameda	2	15
Aptos	11	678
Ben Lomond	7	161
Berkeley	4	79
Bonny Doon	2	81
Boulder Creek	6	85
Brookdale	1	3
Capitola	20	1,922
Carmel	4	36
Castro Valley	1	4
Cupertino	1	664
East Palo Alto	2	14
Felton	10	515
Fremont	2	15
Hayward	1	1
Los Altos	140	15,030
Los Altos Hills	24	8,656
Los Gatos	130	15,490
Moraga	1	114
Morgan Hill	2	91
Mountain View	46	4,728
Oakland	32	6,872
Orinda	2	210
Palo Alto	207	43,044
Piedmont	1	2
Pinole	1	242
Richmond	3	1,689
San Jose	1	26
San Ramon	1	1
Santa Clara	1	5
Santa Cruz	122	17,076
Saratoga	6	557
Scotts Valley	67	8,782
Soquel	80	7,454
Sunnyvale	10	808
Union City	1	124
Watsonville	1	193
Total	1,219	159,865

Noise Reporters Location Map

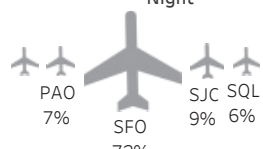
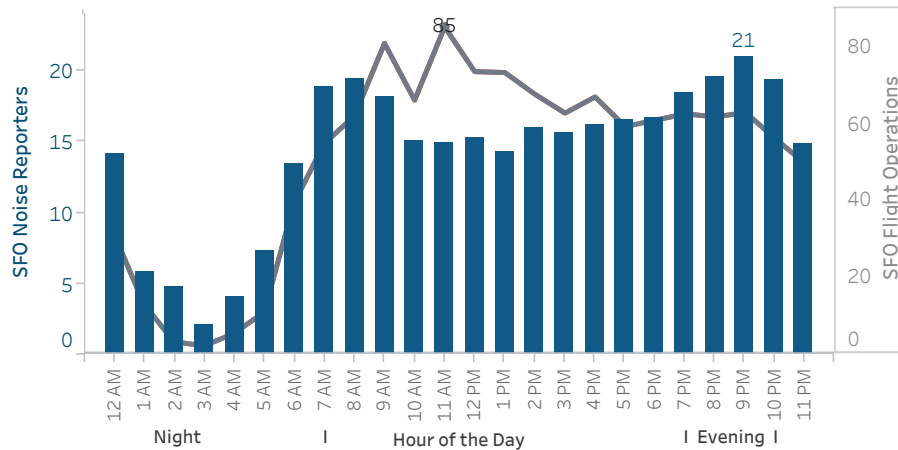


- 1,409 Noise Reporters (12 month AVG)
- 207,829 Noise Reports (12 Month AVG)
- 21 New Reporters
- Pacifica New Reporters Top City
- 88 Miles Furthest Report
- 4 Reports per SFO Operation
- B737, A320, E75L Top Aircraft Type
- UAL295, ASA1963, ASA1591 Top Flight Number

Roundtable Communities

Other Communities

Hourly Noise Reporters vs. Flight Operations (AVG Day)



96% of noise reports correlate to a flight origin/destination airport

Source: SFO Intl Airport Noise Monitoring System

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Airport Director's Report

Presented at the February 6, 2019
Airport Community Roundtable Meeting

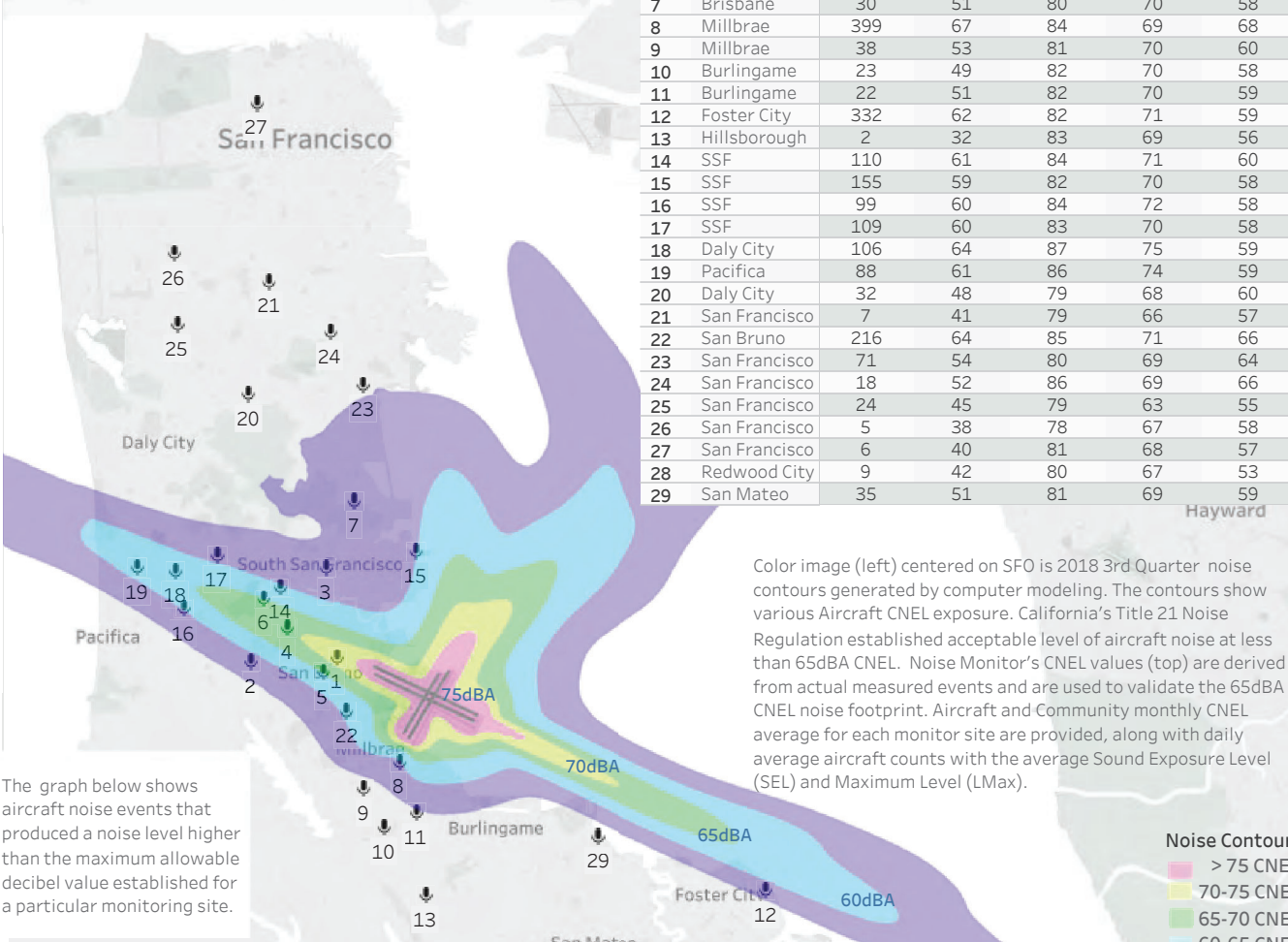
Aircraft Noise Abatement Office
December 2018



San Francisco
International
Airport

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 quarterly 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.

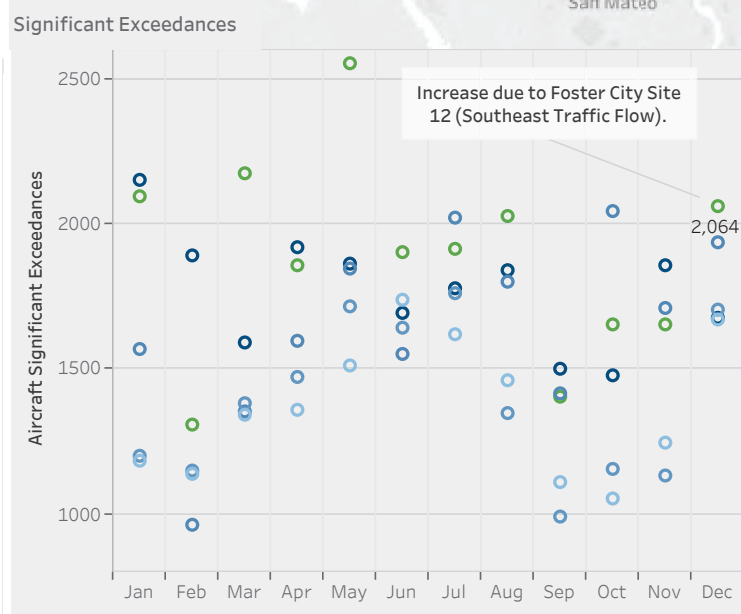
Site	City	Noise Events (AVG Day)	Aircraft			City
			CNEL (dBA)	SEL (dBA)	LMax (dBA)	
1	San Bruno	221	73	93	75	69
3	SSF	67	55	80	68	63
4	SSF	122	69	91	78	60
5	San Bruno	132	67	89	76	64
6	SSF	113	65	88	76	57
7	Brisbane	30	51	80	70	58
8	Millbrae	399	67	84	69	68
9	Millbrae	38	53	81	70	60
10	Burlingame	23	49	82	70	58
11	Burlingame	22	51	82	70	59
12	Foster City	332	62	82	71	59
13	Hillsborough	2	32	83	69	56
14	SSF	110	61	84	71	60
15	SSF	155	59	82	70	58
16	SSF	99	60	84	72	58
17	SSF	109	60	83	70	58
18	Daly City	106	64	87	75	59
19	Pacifica	88	61	86	74	59
20	Daly City	32	48	79	68	60
21	San Francisco	7	41	79	66	57
22	San Bruno	216	64	85	71	66
23	San Francisco	71	54	80	69	64
24	San Francisco	18	52	86	69	66
25	San Francisco	24	45	79	63	55
26	San Francisco	5	38	78	67	58
27	San Francisco	6	40	81	68	57
28	Redwood City	9	42	80	67	53
29	San Mateo	35	51	81	69	59



Color image (left) centered on SFO is 2018 3rd Quarter noise contours generated by computer modeling. The contours show various Aircraft CNEL exposure. California's Title 21 Noise Regulation established acceptable level of aircraft noise at less than 65dBA CNEL. Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along with daily average aircraft counts with the average Sound Exposure Level (SEL) and Maximum Level (LMax).

Noise Contour
 > 75 CNEL
 70-75 CNEL
 65-70 CNEL
 60-65 CNEL
 55-60 CNEL

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.

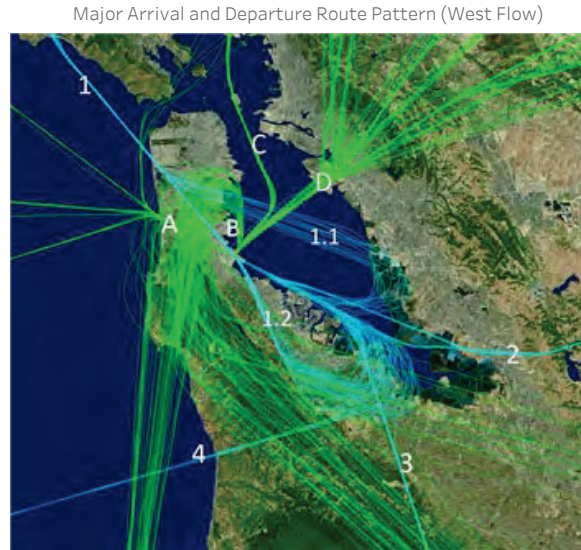
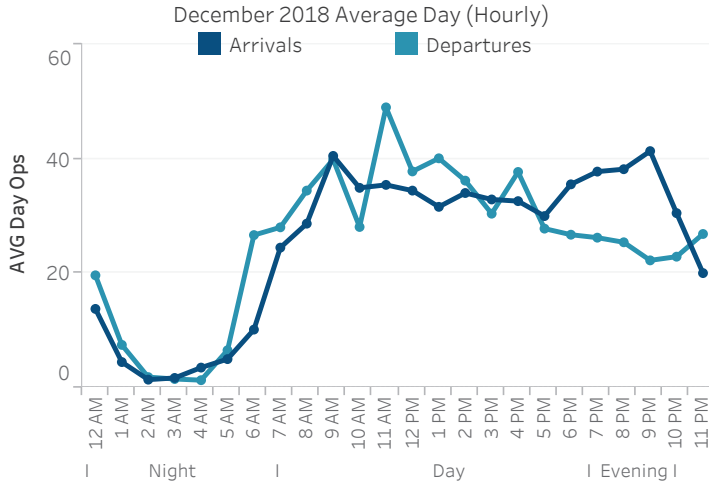


Note: Site 2 is currently not operational.

Monthly Operations Summary

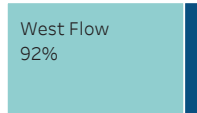
December 2018

37,373	1,206	38,098	-4.6%
Monthly Operations	Average Daily Operations	12 Month AVG	YOY Growth



Departures		Arrivals	
A. GAP	19%	1. BDEGA	26%
B. SSTIK	31%	2. DYAMD	41%
C. NIITE	9%	3. SERFR	27%
D. TRUKN RWY 01	40%	4. OCEANIC	6%
D. TRUKN RWY 28	1%		

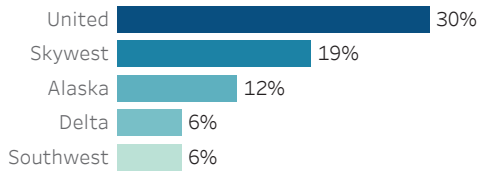
Top Destinations	
Los Angeles	Seattle
8%	6%



West Flow is depicted in the above image and is a predominate flow at SFO.

Down the Bay vs Peninsula	
1.1 BDEGA East	27%
1.2 BDEGA West	73%

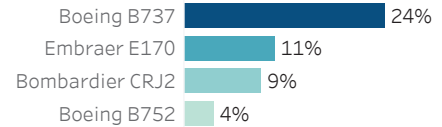
Airlines with the Most Operations



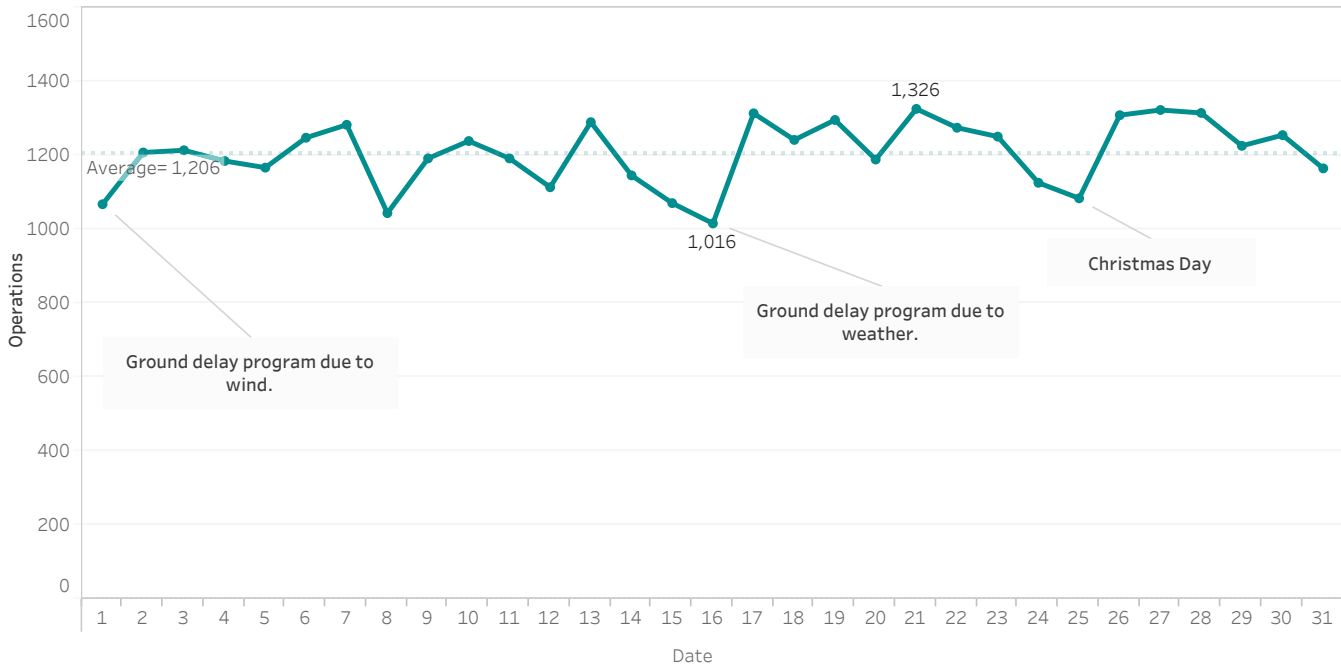
Business Jets / Helicopters / GA 16%



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. (Percent [%] rounded to nearest whole number)

Runway Utilization (all hours)

	Arrivals	Departures
01 L/R		75% 13,404
10 L/R	1% 190	9% 1,531
19 L/R	7% 1,248	
28 L/R	92% 16,325	16% 2,904

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

	Departures
10 L/R	10% 52
01 L/R	52% 269
28 L/R	38% 199

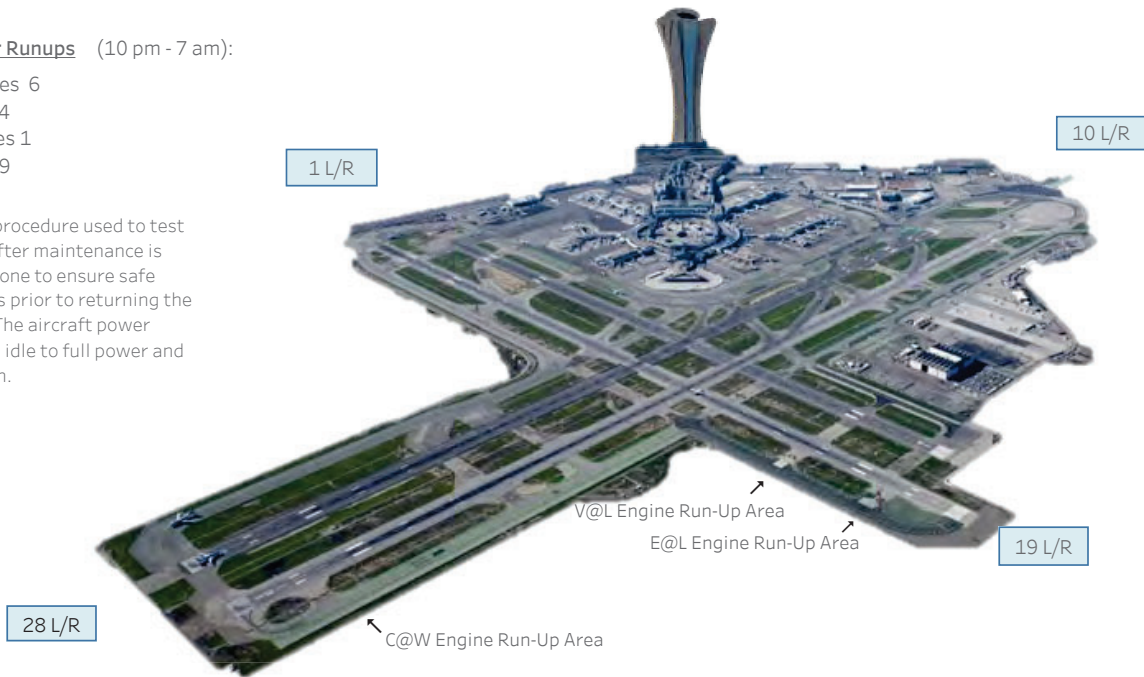
28 L vs R

Arrivals	
28L	28R
45%	55%
Night (10 pm - 7 am)	
33%	67%

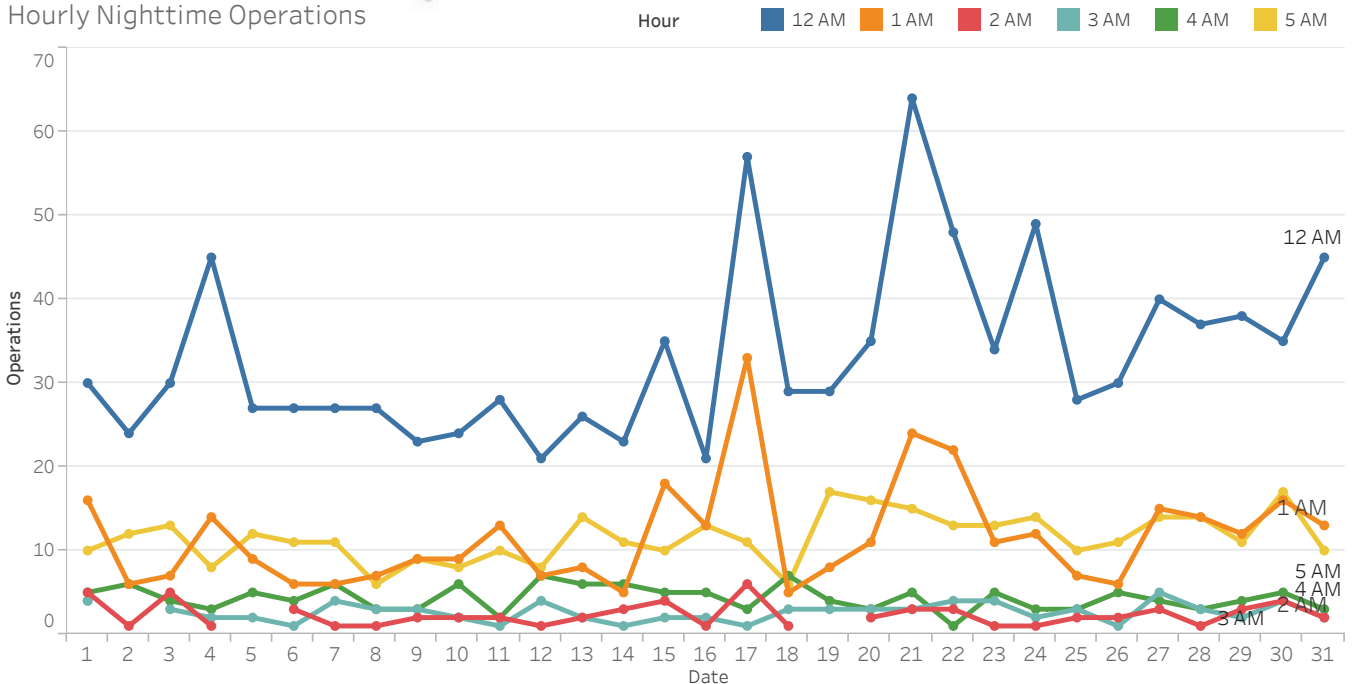
Nighttime Power Runups (10 pm - 7 am):

- American Airlines 6
- Alaska Airlines 4
- Compass Airlines 1
- United Airlines 9

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



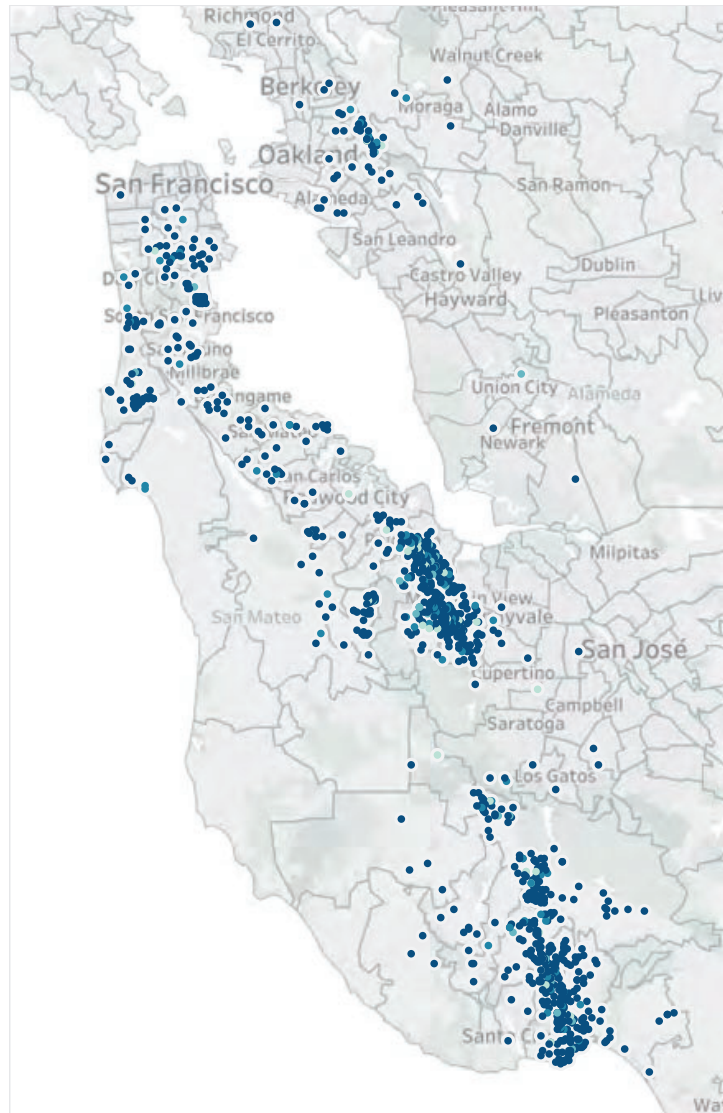
December 2018

Noise Reporters / Noise Reports

Noise Reporters Location Map

Community	Noise Reporters	Noise Reports
Atherton	4	1,055
Belmont	7	637
Brisbane	37	1,385
Burlingame	8	206
Daly City	8	819
El Granada	3	630
Foster City	6	107
Half Moon Bay	3	123
Hillsborough	5	40
Menlo Park	20	1,455
Millbrae	3	3
Pacifica	41	3,829
Portola Valley	36	6,594
Redwood City	15	2,163
San Bruno	10	618
San Carlos	5	154
San Francisco	38	5,754
San Mateo	14	1,248
South San Francisco	9	46
Woodside	9	1,121
Alameda	5	17
Aptos	13	503
Ben Lomond	6	85
Berkeley	6	282
Bonny Doon	2	66
Boulder Creek	4	83
Brookdale	1	4
Capitola	18	1,494
Carmel	3	59
Castro Valley	1	16
Cupertino	2	810
East Palo Alto	2	59
Felton	11	506
Fremont	2	4
Lafayette	1	1
Los Altos	136	17,002
Los Altos Hills	29	8,171
Los Gatos	117	14,705
Moraga	1	35
Morgan Hill	2	76
Mountain View	40	3,854
Oakland	35	6,822
Orinda	2	408
Palo Alto	189	42,081
Piedmont	1	11
Pinole	1	226
Richmond	4	1,555
San Jose	1	5
Santa Clara	2	12
Santa Cruz	127	13,777
Saratoga	5	543
Scotts Valley	70	8,361
Soquel	82	6,770
Sunnyvale	5	576
Union City	1	613
Watsonville	1	207
Total	1,209	157,786

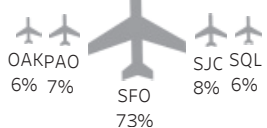
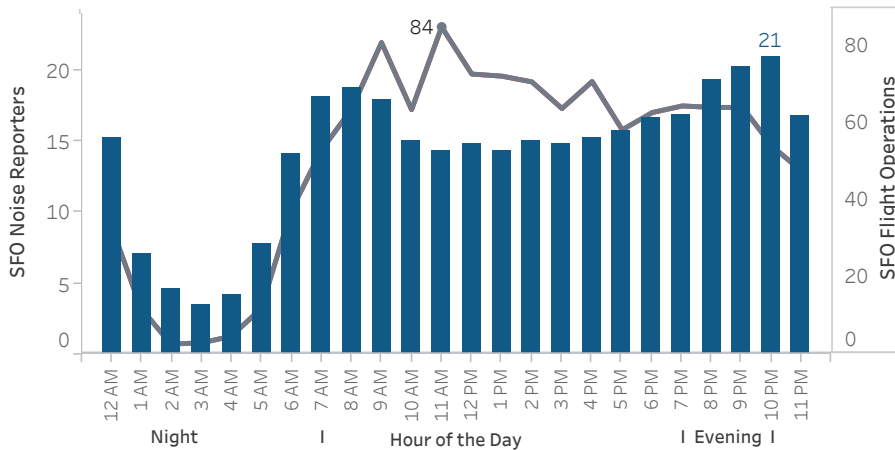
- 1,406 Noise Reporters (12 month AVG)
- 208,041 Noise Reports (12 Month AVG)
- 41 New Reporters
- San Francisco New Reporters Top City
- 86 Miles Furthest Report
- 4 Reports per SFO Operation
- B737 A320 Top Aircraft Type
- ASA1045 ASA1963 UAL2201 Top Flight Number



Roundtable Communities

Other Communities

Hourly Noise Reporters vs. Flight Operations (AVG Day)



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

Source: SFO Intl Airport Noise Monitoring System

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Fly Quiet Report

Presented at the February 6, 2019
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
Third Quarter 2018



San Francisco
International
Airport

































Airline Fly Quiet Summary Report - 3rd Quarter 2018

July 1 to September 30, 2018

Airline		Fleet Noise Quality	Noise Exceedance	Nighttime Runway Use	Departures Shoreline	Arrivals Gap Foster City	Final Score	Airline Fly Quiet Rating			
AIR CHINA	CCA	10.00	9.97	-	-	6.36	-	8.78			
Lufthansa	DLH	9.09	9.93	-	-	6.55	-	8.52			
virgin atlantic	VIR	6.66	9.99	-	-	8.59	-	8.41			
Scandinavian Airlines	SAS	8.17	9.93	-	-	5.60	-	7.90			
JAPAN AIRLINES	JAL	7.13	9.93	-	-	6.36	-	7.81			
Emirates	UAE	10.00	9.90	-	-	3.49	-	7.80			
ANA	ANA	7.15	10.00	-	-	6.22	-	7.79			
AIRFRANCE	AFR	8.41	9.96	-	-	4.30	-	7.56			
SkyWest	SKW	10.00	9.95	3.33	8.70	5.96	5.40	7.22			
HONGKONG AIRLINES 香港航空	CRK	9.50	10.00	-	-	2.01	-	7.17			
WESTJET	WJA	5.84	9.86	-	10.00	5.00	5.00	7.14			
Frenchbee	FBU	9.50	9.84	0.00	8.75	9.03	5.00	7.02			
wow	WOW	4.05	10.00	-	6.25	7.59	-	6.97			
BRITISH AIRWAYS	BAW	6.68	9.72	-	-	4.43	-	6.94			
JAL	JZA	10.00	9.98	-	6.88	3.44	4.17	6.89			
SWISS	SWR	7.15	10.00	-	-	3.53	-	6.89			
中國東方航空 CHINA EASTERN	CES	5.71	9.98	-	-	4.89	-	6.86			
FRONTIER AIRLINES	FFT	5.04	9.80	3.65	9.00	6.00	7.36	6.81			
DELTA	DAL	6.41	9.87	3.83	7.30	6.47	6.96	6.81			
Southwest	SWA	5.85	9.82	3.33	9.61	5.74	6.49	6.81			
Aer Lingus	EIN	4.05	10.00	-	-	6.22	-	6.76			
AIR CANADA	ACA	7.15	9.75	3.14	6.75	5.39	7.87	6.67			
sun country airlines	SCX	5.83	9.77	3.33	9.33	5.00	6.50	6.63			
KALITAE AIR	CKS	3.43	10.00	-	-	6.04	-	6.49			
TURKISH AIRLINES	THY	7.15	9.97	-	-	2.15	-	6.42			
UNITED	UAL	5.82	9.76	3.05	6.80	6.65	5.73	6.30			
FINNAIR	FIN	4.19	10.00	-	5.00	5.83	-	6.26			
								6.14	SFO AVERAGE		
Alaska	ASA	5.29	9.80	3.33	8.73	3.75	5.80	6.12			
AIR NEW ZEALAND	ANZ	6.97	6.17	-	-	5.07	-	6.07			
ICELANDAIR	ICE	3.84	10.00	-	4.44	5.83	-	6.03			
FedEx	FDX	3.84	9.02	-	7.73	4.38	5.09	6.01			
jetBlue	JBU	4.76	9.80	3.33	6.85	5.31	5.92	6.00			
Compass Airlines	CPZ	4.85	9.86	3.07	-	6.60	5.00	5.88			
XL Airways	XLF	4.05	9.90	-	7.50	1.72	-	5.79			
American Airlines	AAL	4.88	9.76	3.35	8.37	1.37	6.99	5.79			
interjet	AIJ	4.85	9.18	0.00	-	9.00	-	5.76			
Avianca	TAI	4.89	8.99	2.86	-	6.95	4.94	5.73			
volaris	VOI	4.85	9.32	3.33	-	-	5.00	5.62			
AEROMEXICO	AMX	5.82	9.19	2.78	-	4.42	5.00	5.44			

Airline Fly Quiet Summary Report - 3rd Quarter 2018




























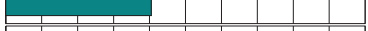














July 1 to September 30, 2018

Airline		Fleet Noise Quality	Noise Exceedance	Nighttime Runway Use	Departures Shoreline	Arrivals Gap Foster City	Final Score	Airline Fly Quiet Rating												
	GTI	4.27	7.88	0.00	7.86	7.67	4.87	5.42												
	KAL	8.86	7.85	0.00	-	5.29	4.92	5.39												
	IBE	4.05	9.92	-	5.00	2.43	-	5.35												
	HAL	4.04	9.68	3.33	-	4.69	5.00	5.35												
	CSN	7.15	8.37	0.00	-	5.44	-	5.24												
	SIA	8.33	8.46	0.00	-	3.84	-	5.16												
	CPA	7.92	7.98	0.07	-	5.33	4.29	5.12												
	TCX	4.05	10.00	-	2.50	3.75	-	5.07												
	CMP	5.87	8.96	0.22	6.67	3.08	4.67	4.91												
	AAR	6.81	6.12	0.00	-	6.18	5.00	4.82												
	AIC	7.15	7.78	0.27	1.67	7.07	-	4.79												
	EVA	7.15	7.65	0.00	-	3.88	-	4.67												
	PAL	7.36	6.08	0.00	-	4.21	5.00	4.53												
	CAL	5.47	7.04	0.09	-	4.99	5.00	4.52												
	KLM	3.51	9.98	-	1.11	2.75	-	4.34												
	KYE	4.03	7.18	1.11	-	6.88	1.67	4.17												
	FJI	4.05	6.63	0.00	-	5.42	-	4.02												
	QFA	3.43	0.00	-	-	6.40	-	3.27												
SFO Average		6.18	9.06	1.69	6.66	5.25	5.36	6.14												

Fleet Noise Quality - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Nationwide		San Francisco		Fleet Noise Quality Rating
	Fleet Noise Quality Rating	Average Daily Jet Operations	Score		
AIR CHINA CCA	6.90	1	10.00		
Emirates UAE	7.20	1	10.00		
JAZZ JZA	8.90	4	10.00		
SkyWest SKW	8.50	40	10.00		
HONGKONG AIRLINES 香港航空 CRK	6.50	1	9.50		
Frenchbee FBU	6.50	1	9.50		
Lufthansa DLH	6.60	2	9.09		
KOREAN AIR KAL	6.60	3	8.86		
AIRFRANCE AFR	7.00	2	8.41		
SINGAPORE AIRLINES SIA	7.30	2	8.33		
Scandinavian Airlines SAS	4.90	1	8.17		
CATHAY PACIFIC CPA	7.30	3	7.92		
Philippines PAL	6.90	1	7.36		
AIR CANADA ACA	6.60	10	7.15		
ANA ANA	7.80	1	7.15		
中国南方航空 CSN	7.30	1	7.15		
SWISS SWR	4.90	1	7.15		
TURKISH AIRLINES THY	5.70	1	7.15		
AIR INDIA AIC	7.30	1	7.15		
EVA AIR EVA	6.90	3	7.15		
JAPAN AIRLINES JAL	7.80	1	7.13		
AIR NEW ZEALAND ANZ	7.90	1	6.97		
ASIANA AIRLINES AAR	6.90	2	6.81		
BRITISH AIRWAYS BAW	7.30	2	6.68		
virgin atlantic VIR	6.10	1	6.66		
DELTA DAL	5.80	45	6.41		
			6.18		SFO AVERAGE
Copa Airlines CMP	5.50	2	5.87		
Southwest SWA	5.50	46	5.85		
WESTJET WJA	5.70	3	5.84		
sun country airlines SCX	5.30	2	5.83		
UNITED UAL	5.70	201	5.82		
AEROMEXICO AMX	7.90	3	5.82		
中国东方航空 CES	4.90	1	5.71		
CHINA AIRLINES CAL	6.40	2	5.47		
Alaska ASA	5.20	72	5.29		
FRONTIER AIRLINES FFT	5.20	2	5.04		

Airline	Nationwide		San Francisco		Fleet Noise Quality Rating
	Fleet Noise Quality Rating		Average Daily Jet Operations	Score	
 Avianca TAI	5.18		2	4.89	
 American Airlines AAL	5.50		35	4.88	
 Interjet AIJ	5.00		1	4.85	
 Compass Airlines CPZ	5.30		0	4.85	
 Volaris VOI	5.20		1	4.85	
 JetBlue JBU	5.80		16	4.76	
 Atlas Air GTI	5.60		2	4.27	
 Finnair FIN	3.80		0	4.19	
 Aer Lingus EIN	4.50		1	4.05	
 Iberia IBE	5.20		0	4.05	
 Thomas Cook Airlines TCX	3.80		0	4.05	
 WOW air WOW	5.00		1	4.05	
 XL Airways XLF	3.80		0	4.05	
 Fiji Airways FJI	4.40		0	4.05	
 Hawaiian Airlines HAL	5.60		2	4.04	
 Sky Lease Cargo KYE	4.60		0	4.03	
 FedEx FDX	5.10		1	3.84	
 Icelandair ICE	6.90		1	3.84	
 KLM Royal Dutch Airlines KLM	6.60		1	3.51	
 Kalitta Air CKS	5.60		0	3.43	
 Qantas QFA	5.80		1	3.43	
AVERAGE	6.05		9	6.18	





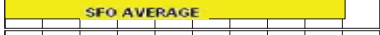

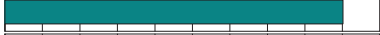


























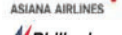




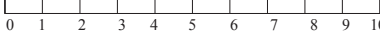
Noise Exceedance Rating Report - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Noise Exceedances				Noise Exceedance Quality Rating
	Total Noise Exceedances	Total Quarterly Operations	Exceedances per 1000 Operations	Score	
ANA	0	183	0	10.00	
CKS	0	12	0	10.00	
CRK	0	102	0	10.00	
EIN	0	184	0	10.00	
FIN	0	78	0	10.00	
ICE	0	105	0	10.00	
SWR	0	184	0	10.00	
TCX	0	78	0	10.00	
WOW	0	184	0	10.00	
VIR	1	448	2	9.99	
JZA	2	726	3	9.98	
KLM	1	289	3	9.98	
CES	1	258	4	9.98	
THY	1	184	5	9.97	
CCA	1	183	5	9.97	
AFR	2	348	6	9.96	
SKW	143	16,940	8	9.95	
DLH	4	368	11	9.93	
JAL	2	184	11	9.93	
SAS	2	184	11	9.93	
IBE	1	78	13	9.92	
UAE	3	182	16	9.90	
XLF	1	60	17	9.90	
DAL	181	8,293	22	9.87	
CPZ	44	1,914	23	9.86	
WJA	13	551	24	9.86	
FBU	4	153	26	9.84	
QXE	15	532	28	9.83	
SWA	247	8,473	29	9.82	
FFT	14	436	32	9.80	
JBU	96	2,914	33	9.80	
ASA	440	13,312	33	9.80	
SCX	14	370	38	9.77	
UAL	1,517	39,084	39	9.76	
AAL	257	6,618	39	9.76	
ACA	87	2,121	41	9.75	
BAW	17	368	46	9.72	
HAL	19	368	52	9.68	
VOI	13	116	112	9.32	

Noise Exceedance Rating Report - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Noise Exceedances				Noise Exceedance Quality Rating
	Total Noise Exceedances	Total Quarterly Operations	Exceedances per 1000 Operations	Score	
 AMX	72	542	133	9.19	
 AIJ	21	157	134	9.18	
				9.07	
 FDX	37	230	161	9.02	
 TAI	52	314	166	8.99	
 CMP	74	435	170	8.96	
 SIA	92	364	253	8.46	
 CSN	59	221	267	8.37	
 CPA	178	539	330	7.98	
 GTI	99	285	347	7.88	
 KAL	180	512	352	7.85	
 AIC	86	237	363	7.78	
 EVA	208	540	385	7.65	
 KYE	6	13	462	7.18	
 CAL	162	335	484	7.04	
 FJI	37	67	552	6.63	
 ANZ	114	182	626	6.17	
 AAR	209	329	635	6.12	
 PAL	145	226	642	6.08	
 QFA	306	187	1636	0.00	
TOTAL	5,280	112,880			
SFO AVERAGE			152	9.07	










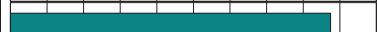




















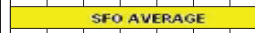


















Nighttime Preferential Runway Use - 3rd Quarter 2018

July 1 to September 30, 2018

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	
DAL	20	0%	15%	85%	0%	3.83	
FFT	85	0%	11%	88%	1%	3.65	
AAL	208	0%	9%	83%	8%	3.35	
ASA	14	0%	0%	100%	0%	3.33	
HAL	1	0%	0%	100%	0%	3.33	
JBU	14	0%	0%	100%	0%	3.33	
SCX	3	0%	0%	100%	0%	3.33	
SKW	7	0%	0%	100%	0%	3.33	
SWA	55	0%	0%	100%	0%	3.33	
VOI	14	0%	0%	100%	0%	3.33	
ACA	17	0%	6%	82%	12%	3.14	
CPZ	51	0%	0%	92%	8%	3.07	
UAL	571	0%	1%	89%	10%	3.05	
TAI	92	0%	0%	86%	14%	2.86	
AMX	6	0%	0%	83%	17%	2.78	
						1.69	SFO AVERAGE
KYE	3	0%	0%	33%	67%	1.11	
AIC	37	0%	3%	3%	95%	0.27	
CMP	92	0%	3%	0%	97%	0.22	
CAL	112	1%	0%	0%	99%	0.09	
CPA	147	1%	0%	0%	99%	0.07	
AAR	49	0%	0%	0%	100%	0.00	
AIJ	1	0%	0%	0%	100%	0.00	
CSN	1	0%	0%	0%	100%	0.00	
EVA	182	0%	0%	0%	100%	0.00	
FBU	6	0%	0%	0%	100%	0.00	
FJI	1	0%	0%	0%	100%	0.00	
GTI	1	0%	0%	0%	100%	0.00	
KAL	75	0%	0%	0%	100%	0.00	
PAL	93	0%	0%	0%	100%	0.00	
SIA	90	0%	0%	0%	100%	0.00	
TOTAL	2,048						
SFO AVERAGE		0%	2%	47%	51%	1.69	



































































Shoreline Departure Rating - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Shoreline Departures					Shoreline Departure Rating
	Total	Successful	Marginal	Poor	Score	
 WJA	20	100%	0%	0%	10.00	
 SWA	76	92%	8%	0%	9.61	
 SCX	15	87%	13%	0%	9.33	
 FFT	25	80%	20%	0%	9.00	
 FBU	4	75%	25%	0%	8.75	
 ASA	221	76%	24%	1%	8.73	
 SKW	123	82%	10%	8%	8.70	
 AAL	163	71%	26%	3%	8.37	
 GTI	7	57%	43%	0%	7.86	
 FDX	11	64%	27%	9%	7.73	
 XLF	4	50%	50%	0%	7.50	
 DAL	202	53%	39%	7%	7.30	
 JZA	16	44%	50%	6%	6.88	
 JBU	73	37%	63%	0%	6.85	
 UAL	485	50%	37%	14%	6.80	
					6.78	
 ACA	63	49%	37%	14%	6.75	
 CMP	3	33%	67%	0%	6.67	
 WOW	8	25%	75%	0%	6.25	
 FIN	1	0%	100%	0%	5.00	
 IBE	1	0%	100%	0%	5.00	
 ICE	9	11%	67%	22%	4.44	
 TCX	2	0%	50%	50%	2.50	
 AIC	3	0%	33%	67%	1.67	
 KLM	27	0%	22%	78%	1.11	
TOTAL	1,562					
SFO AVERAGE		47%	41%	12%	6.78	
















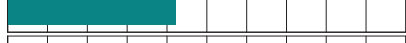




























Gap Departure Climb Rating - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Gap Departures		Gap Departure Quality Rating
	Total	Score	
 FBU	67	9.03	
 AIJ	5	9.00	
 VIR	85	8.59	
 GTI	51	7.67	
 WOW	14	7.59	
 AIC	113	7.07	
 TAI	16	6.95	
 KYE	4	6.88	
 QXE	25	6.80	
 UAL	3786	6.65	
 CPZ	71	6.60	
 DLH	181	6.55	
 DAL	140	6.47	
 QFA	93	6.40	
 JAL	89	6.36	
 CCA	90	6.36	
 EIN	91	6.22	
 ANA	90	6.22	
 AAR	165	6.18	
 CKS	6	6.04	
 FFT	5	6.00	
 SKW	490	5.96	
 FIN	27	5.83	
 ICE	3	5.83	
 SWA	249	5.74	
 SAS	91	5.60	
 CSN	109	5.44	
 FJI	33	5.42	
 ACA	16	5.39	
 CPA	266	5.33	
 JBU	32	5.31	
 KAL	252	5.29	
		5.25	SFO AVERAGE
 ANZ	91	5.07	
 SCX	1	5.00	
 WJA	2	5.00	




























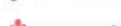













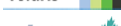













Gap Departure Climb Rating - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Gap Departures		Gap Departure Quality Rating
	Total	Score	
 CAL	168	4.99	
 CES	129	4.89	
 HAL	16	4.69	
 BAW	172	4.43	
 AMX	13	4.42	
 FDX	6	4.38	
 AFR	164	4.30	
 PAL	113	4.21	
 EVA	267	3.88	
 SIA	179	3.84	
 ASA	500	3.75	
 TCX	16	3.75	
 SWR	91	3.53	
 UAE	91	3.49	
 JZA	4	3.44	
 CMP	212	3.08	
 KLM	15	2.75	
 IBE	38	2.43	
 THY	92	2.15	
 CRK	51	2.01	
 XLF	8	1.72	
 AAL	449	1.37	
TOTAL	9643		
SFO Average		5.25	

Foster City Arrival Rating - 3rd Quarter 2018

July 1 to September 30, 2018

Airline	Foster City Arrivals					Foster City Arrival Rating
	Total	Successful	Marginal	Poor	Score	
 ACA	115	57%	43%	0%	7.87	
 FFT	55	47%	53%	0%	7.36	
 AAL	417	41%	59%	1%	6.99	
 DAL	275	40%	59%	1%	6.96	
 SCX	10	40%	50%	10%	6.50	
 SWA	367	30%	69%	1%	6.49	
 JBU	218	18%	82%	0%	5.92	
 ASA	437	18%	80%	2%	5.80	
 UAL	1,551	18%	79%	3%	5.73	
 SKW	50	14%	80%	6%	5.40	
					5.36	
 FDX	58	2%	98%	0%	5.09	
 AAR	51	0%	100%	0%	5.00	
 AMX	6	0%	100%	0%	5.00	
 CAL	26	0%	100%	0%	5.00	
 CPZ	61	0%	100%	0%	5.00	
 FBU	1	0%	100%	0%	5.00	
 HAL	3	0%	100%	0%	5.00	
 PAL	2	0%	100%	0%	5.00	
 VOI	5	0%	100%	0%	5.00	
 WJA	3	0%	100%	0%	5.00	
 TAI	90	0%	99%	1%	4.94	
 KAL	66	0%	98%	2%	4.92	
 GTI	38	0%	97%	3%	4.87	
 CMP	92	0%	93%	7%	4.67	
 CPA	7	0%	86%	14%	4.29	
 JZA	6	0%	83%	17%	4.17	
 KYE	3	0%	33%	67%	1.67	
TOTAL	4,013					
SFO AVERAGE		12%	83%	5%	5.36	



November 5, 2018

TO: Roundtable Members and Interested Parties

FROM: Eugene M. Reindel
Justin W. Cook – INCE, LEED GA
Roundtable Technical Consultant - HMMH

SUBJECT: Questions for the FAA at the **December 5**, 2018 SFO Airport/Community Roundtable Meeting (*revised 11/9/2018*)

The following are four (4) items for the Federal Aviation Administration (FAA) to answer at the **December 5, 2018 SFO Airport/Community Roundtable Regular Meeting**. While these are specific items that we would like the FAA to answer, we are also hoping that the FAA will come prepared to discuss possible alternate solutions should they deem any of these not feasible.

Item 1:

Problem Statement: Following the publication of the FOGGG, SAHEY and CIITY Departure Procedures (DPs) for SFO Runways 10L and 10R immediate concern was generated over the close proximity of the SAHEY and CIITY DPs to the eastern shoreline of the San Francisco Peninsula. Both SFO and the public requested moving back to the previous DUMBARTON DP. This was deemed “not feasible” apparently due to the FAA desiring to have simultaneous dual departures thus requiring compliance with the divergent heading requirement for the FOGGG and the SAHEY/CIITY DPs.

Question: If the DUMBARTON departure procedure for Runway 10 during southeast flow conditions (not opposite direction operations) cannot be recommissioned, what would be required to achieve a new procedure with a similar heading (such as 080 or 085) that keeps aircraft largely over the Bay as the DUMBARTON DP did? We would like to examine a wide variety of options including, creating new and decommissioning and/or greatly modifying the SAHEY and CIITY departure procedures. Examine the use of a single stream departure in both day and night with projected volumes.

Item 2:

Problem Statement: The SFO SSTIK DP brings an extremely large volume of flights over the densely populated middle and Northern San Francisco Peninsula. Previously, the PORTE and OFFSHORE DPs split the volume based on destination with a substantial amount crossing directly across the peninsula with the OFFSHORE DP, south over the Pacific Ocean. The concentration of these two previous procedures under the SSTIK DP has proved problematic.

Question: What would be required to achieve converting the OFFSHORE DP into an RNAV DP and 1) change the angle to stay over the Pacific Ocean and not over or near the Peninsula, 2) repeat to the extent possible the geographical path of the OFFSHORE from takeoff to the Pacific Ocean and 3) connect at FFOIL or another similar offshore waypoint while remaining clear of Special Use Airspace

Questions for the FAA at the December 5, 2018 SFO Airport/Community Roundtable Meeting

(Revised 11/9/2018)

November 5, 2018

Page 2 of 3

(SUA)? If the OFFSHORE DP cannot be turned into a RNAV with the above considerations, can a DP be constructed that achieves the same basic ground track as the existing OFFSHORE DP with the above considerations? For discussion purposes the Technical Working Group would appreciate the FAA providing Google Earth or similar graphics including waypoints, the SSTIK, EUGEN, PORTE, OFFSHORE DPs with transitions, SUAs (floor, ceiling and hours of operation) and any other procedures that may impact an OFFSHORE RNAV overlay or similar procedure creation.

Additional Clarification: As charted, the OFFSHORE departure directs aircraft from Runways 1L/R to SEPDY, WAMMY, SEGUL. As charted, the OFFSHORE departure directs aircraft from Runways 28L/R to SENZY, WAMMY, SEGUL.

If aircraft flew over WAMMY and SEGUL – they would remain over ocean and not over the Peninsula. In our question, we discuss creating a RNAV departure procedure that takes a path from takeoff to the ocean (WAMMY) and then connect at FFOIL (close to SEGUL) while remaining clear of the Special Use Airspace).

In looking at actual flights utilizing the OFFSHORE departure procedure, they turn and cut across the Peninsula instead of staying over the ocean. Our question applies to both sets of runways utilized. The goal is for aircraft to remain over the ocean and not cross over the Peninsula.

Item 3:

Problem Statement: Continuing with the SSTIK DP though focusing on the waypoint SSTIK - The November 2017 Phase II Final document included the Airport/Community Roundtable's ask stating in Appendix D, 2.38 "Move SSTIK N + E as much as feasible to allow maximum altitude gain before turning to fly over land using the historic SEPDY waypoint as a guide." The FAA responded somewhat cryptically, "Due to a change in criteria, the SSTIK waypoint is in the process of being moved 0.44 NM to the East-Southeast of its present position. The FAA does not support moving SSTIK north due to the close proximity to OAK procedures." When requesting more information, we received the following: "AFS 8260.58 criteria has changed since this SID (Standard Instrument Departure) was originally implemented. RNAV SID criteria now requires that when successive Direct to a Fix (DF) is used, it must be within 15 degrees of the runway centerline. The current location of SSTIK is 22.95 degrees from the departure end of Runway 01R." On September 13, 2018 the charting release date we had been informed by the FAA to expect the SSTIK waypoint move, it did not. We were informed that only the YYUNG transition changed adding and dropping waypoints. This revision did not include the SSTIK move.

Question: Can the FAA overlay the proposed new SSTIK waypoint with the current SSTIK waypoint in the same image and provide both current and proposed SSTIK DPs in Google Earth KML files? This will include the ground track for the procedure as it is today as well as the procedure as it would look with the new SSTIK waypoint. We request modeled flight track information for these two waypoints on the SSTIK procedure as well as the new charting date. Please provide the design notes for the change in the SSTIK waypoint location.

Item 4:

Problem Statement: Following the recent appearance of the STAR PIRAT (RNAV) One on the FAA's Instrument Flight Procedures (IFP) Information Gateway, there has been community concern generated around its altitudes and locations over the middle and southern San Francisco Peninsula.

Questions for the FAA at the December 5, 2018 SFO Airport/Community Roundtable Meeting

(Revised 11/9/2018)

November 5, 2018

Page 3 of 3

Questions:

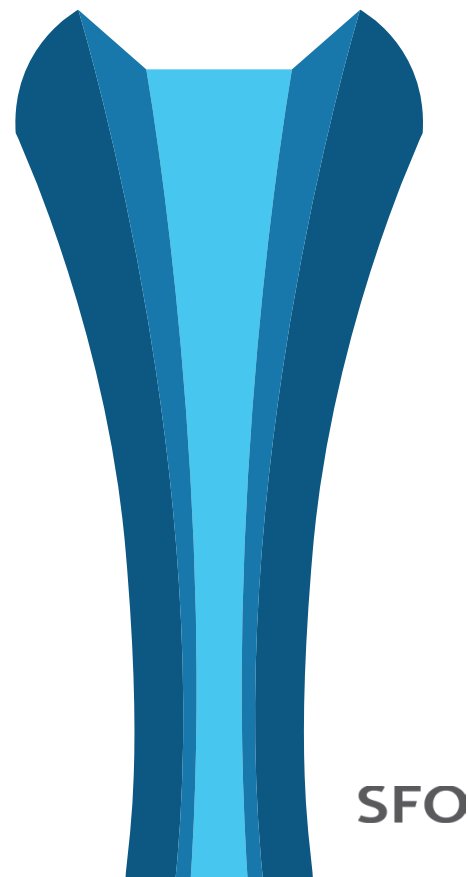
The Roundtable requests that the FAA provide a graphic representation of the STAR PIRAT (RNAV) that displays the projected flight paths from PIRAT's oceanic origination point to final approaches at SFO and OAK and estimates the projected corridor of the flight paths and altitudes in 1,000-foot increments on a Google map?

1. Provide information on whether this path would result in any changes between the current flight paths and altitudes being flown today from aircraft in the vicinity of PIRAT (from the Pacific Ocean coastline to the Woodside VOR to Final SFO and Oakland) approaches.
2. Provide information about any increase in number of flights that will not use the proposed STAR PIRAT (RNAV)?
3. Would the FAA provide graphic representation showing the evolution of Oceanic arrivals for both SFO and OAK over the last 5 years and into the future? The Roundtable requests the FAA utilize a one month data set for the same month in the years 2013-2018.
4. Will there be an increase in flights over ARGGG versus the current flight volume over the Woodside VOR? What percentage of flights will be vectored after ARGGG? In looking at the procedure development graphics, is the use of the previous San Francisco Class-B Airspace different from the current San Francisco Class-B Airspace? Can the FAA create a new graphic showing the previous and current San Francisco Class B Airspace?

Title 21 Update

California Noise Standards and
SFO Compliance

Presented to the San Francisco International
Airport/Community Roundtable
February 6, 2019



Title 21 Update

Introduction to the California Airport Noise Standards

- Legislature passed Assembly Bill 645 in 1969
 - Required Department “adopt noise standards governing the operation of aircraft and aircraft engines...”
 - Found in California Public Utilities Code
- The CalTrans Department of Transportation – Aeronautics adopted the noise standards in 1970
 - Implementation delayed by legislation until 12/1/72
 - Known as “Title 21” or “Airport Noise Standards”
 - Found in California Code of Regulations, Title 21, Sections 5000-5090
- Title 21 only applies to “Noise Problem Airports”

SFO

Title 21 Update

Introduction to the California Airport Noise Standards

- Law requires Airport Noise Standards:
 - “based upon the level of noise acceptable to a reasonable person residing in the vicinity of the airport”
 - Not be prohibited by federal law
 - The original regulations established aircraft single event noise limit and fines
 - These were struck down in federal court (ATA v. Crotti, 1975)
- Law also provides:
 - Guidance that in developing standards, Department shall:
 - consider economic and technologic feasibility of compliance with standards
 - permit maximum amount of local control and enforcement
 - Enforcer of the standards shall be the county wherein the airport is located
 - San Mateo County declared SFO a “Noise Problem Airport” on February 27, 1972.

SFO

Title 21 Update

Introduction to the California Airport Noise Standards

- Noise Problem Airport
 - Establish aircraft noise monitoring
 - measure, establish, and validate 65dB CNEL noise level for aircraft
 - Provide data to county
 - Apply for variance, if necessary
- County
 - Review and audit airport's monitoring data
 - Submit quarterly report to CalTrans Department of Transportation - Aeronautics
 - Enforce Noise Standards
- CalTrans Department of Transportation - Aeronautics
 - Review/approve airport's noise monitoring plan
 - Review reports/assess progress reducing "noise impact area"
 - Consider applications for variance

SFO

Title 21 Update

California Noise Standards and SFO Compliance

- With this new declaration the Airport had new responsibilities. First among these was a plan to reduce the incompatible land uses within the 65 decibel (dB) Community Noise Equivalent Level (CNEL) noise impact area in the form of a Variance, which included:
 - A Noise Monitoring System
 - A Noise Insulation Program
 - Noise Abatement Procedures
 - Airport/Community Roundtable Work Program
 - Studying Runway Reconfiguration
- SFO Received four variances with the last being issued on September 20, 1998.
- SFO achieved a zero-impact area in December of 2001 through its Residential Sound Insulation Program and became variance free on November 21, 2002.

SFO

Title 21 Update

California Noise Standards and SFO Compliance

- When SFO completed installation of its current Noise Monitoring System in 2006 a complete System Certification was required under Title 21, Section 5043.
 - On January 31, 2006 SFO received Certification of its “Noise Monitoring Plan”
- In 2008 SFO requested the Division of Aeronautics grant a waiver for all of its noise monitors not using the 55 dB threshold.
 - Section 5001i
- In 2009 SFO followed up with a revised request of a waiver for twelve noise monitors.
- In 2011 the Department of Aeronautics granted a waiver for eleven sites. Site 8 was excluded.

SFO

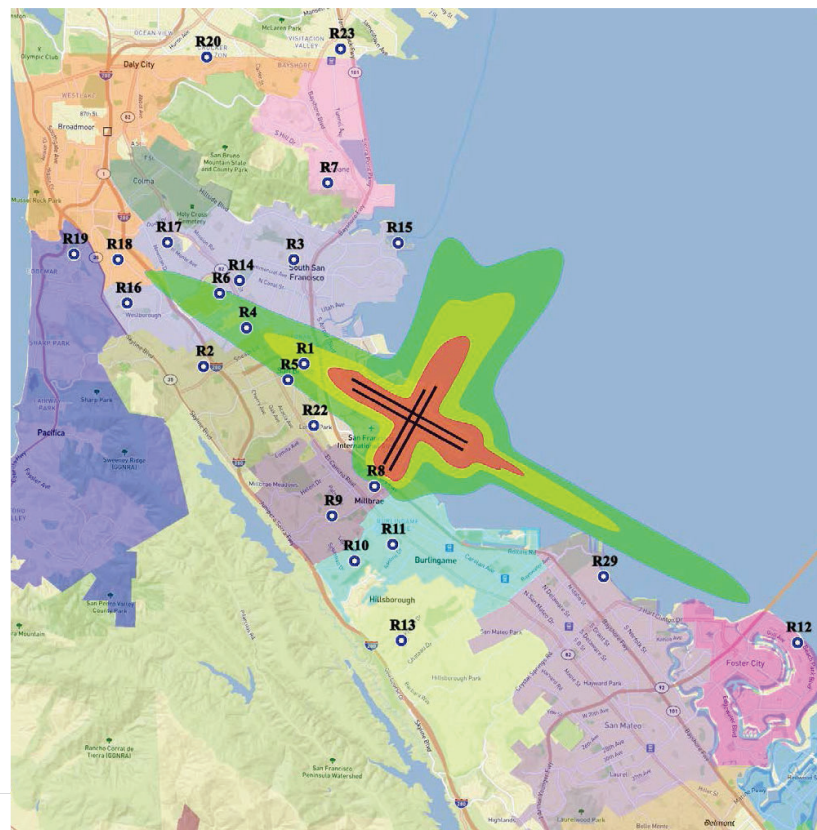
Title 21 Update

California Noise Standards and SFO Compliance

- SFO has been questioned about the use of non standard thresholds for noise monitors outside of the noise contour and why the Department of Aeronautics does not need to waive these as well.

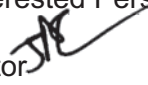
5032. Validation of the Noise Impact Boundary.

The noise impact boundary shall be validated by measurements made at locations approved for this purpose by the department. The noise problem airport proprietor shall ascertain the noise impact boundary within a tolerance of plus or minus 1.5 decibels annual CNEL by measurements made in accordance with, and at locations designated in, a noise monitoring plan approved by the department. The noise impact boundary may be ascertained directly from information gathered from monitors or from the combined use of an approved computer model and the data reported by the noise monitoring system. Monitoring shall be accomplished at locations in the approved monitoring system layout plan. **The locations shall be selected to facilitate locating the maximum extent (closure points) of the noise impact boundary when the contour extremities encompass incompatible land uses.**





January 30, 2019

TO: Roundtable Representatives, Alternatives, and Interested Persons
FROM: James A. Castañeda, AICP, Roundtable Coordinator 
SUBJECT: Roundtable Subcommittee Appointments

As we start the new year and have some change in city representatives, we like to take this opportunity to update everyone on the various subcommittees we have on the Roundtable. Members are encouraged to come prepared to join (or continue participating) on at least one of the standing or current ad-hoc subcommittees.

Below are the standing subcommittees and current ad-hoc subcommittees and their active participants:

STANDING SUBCOMMITTEES

<u>Technical Working Group</u>	<u>Legislative</u>	<u>Work Plan</u>	<u>Operations and Efficiencies</u>
Elizabeth Lewis	Elizabeth Lewis	Elizabeth Lewis	No active participants
Doug Kim	Janet Borgens	Ann Wengert	
Ann Schneider	Harvey Rarback	Janet Borgens	
Ann Wengert			
Janet Borgens			
Diane Papan			

CURRENT AD-HOC SUBCOMMITTEE

Ground-Based Noise
Ricardo Ortiz
Ann Schneider
Marty Medina
Terry O'Connell
Dave Pine

Attached: SFO Airport/Community Roundtable Standing Subcommittees Description

SFO Airport/Community Roundtable Standing Subcommittees

Below is a description of the standing subcommittees as adopted and listed in Article VII of the Roundtable's bylaws, as well as the relevant rules and procedures outlined in that same section.

Bylaw Subcommittee Procedures

- The number of members appointed to a subcommittee of the Roundtable shall consist of less than a quorum of its total membership (no more than 12).
- Standing Subcommittee or Ad Hoc Subcommittee membership and number of meetings shall be based on the following:
 - a. The Chairperson, at his or her discretion, may appoint any Roundtable Representative or Alternate to serve on a Standing Subcommittee or on an Ad Hoc Subcommittee.
 - b. The Roundtable Chairperson and Vice-Chairperson may serve on a Sub-committee or appoint a current member of the Roundtable to serve as the Subcommittee Chairperson. The Roundtable Chairperson shall serve or appoint a Chair of the Subcommittee, and the Subcommittee shall elect the Vice-Chair. When the Chair of the Subcommittee cannot attend a Subcommittee meeting, the Subcommittee Vice-Chair may serve as the Chair for that meeting.
 - c. Each Subcommittee shall meet as many times as necessary to study the issues identified by the Roundtable as a whole and develop and submit final recommendations regarding such issues to the full Roundtable for review/action.
 - d. After the date on which the Roundtable has heard and taken action on an Ad Hoc Subcommittee's final recommendation(s), the Ad Hoc Subcommittee shall cease to exist, unless the Roundtable determines that the Subcommittee must reconvene for the purposes described in this paragraph. In its action on the Ad Hoc Subcommittee recommendation(s), the Roundtable may direct the Subcommittee to reconvene, as necessary to review, refine, and/or revise all or a portion of its recommendation(s). If such action occurs, the Ad Hoc Subcommittee shall be charged with preparing and submitting a subsequent recommendation(s) to the full Roundtable for review/action. After the date on which the Roundtable has received the subsequent Ad Hoc Subcommittee recommendation(s), the Subcommittee shall cease to exist.
- The duties of a chairperson of a Roundtable Subcommittee may include, but are not limited to, presiding over Subcommittee meetings and submitting recommendations to the full Roundtable, regarding the topics/issues addressed by the Subcommittee.

STANDING SUBCOMMITTEES

Work Program Subcommittee

The role of the Work Program Subcommittee is to establish an annual work program that details where the Roundtable will focus its efforts during the coming fiscal year. The Work Program is guided by the Roundtable's Three-Year Strategic Plan, but it is also responsive to issues that are of interest to the community at the particular point in time. The Work Program Subcommittee also assists on development of the aforementioned Three-Year Strategic Plan.

Suggested structure and scheduled:

- 5-7 members
- Meets 2-3 times in the spring, as-needed the remainder of the year.

Operations and Efficiency Subcommittee

The role of the Operations and Efficiency Subcommittee is to review and study the Roundtable's operational aspects as it pertains to conducting meetings and business. The goal of the subcommittee is to help streamline the Roundtable's procedures and governing documents. This subcommittee shall investigate, review, analyze, and develop recommendations for any proposed changes to the bylaws requested by the Roundtable. Recommendations are presented to the Roundtable body for consideration.

Suggested structure and scheduled:

- 5-7 members
- Meet on as-needed basis.

Legislative Subcommittee

The mission of the Legislative Subcommittee is to review, research, analyze, and advise the Roundtable of any existing and/or pending legislative actions at the Federal level that impact the airspace and environs of the San Francisco International Airport as it pertains to noise impacting communities. This subcommittee shall, through local congressional offices, review, analyze and bring to the attention of the Roundtable legislative actions relevant to the issues of noise mitigation solutions for the region. The Legislative Subcommittee may develop recommendations actions for the Roundtable consideration and approval.

Suggested structure and scheduled:

- 5-7 members
- Meet on quarterly basis and/or as-needed basis.

Technical Working Groups (Departures and Arrivals)

The mission of the Technical Working Groups is to allow in-depth technical discussions and provide a forum for stakeholders to deal with specific issues outlined in the Roundtable's Work Plan, but it is also responsive to issues that are of interest to the community at the particular point in time. Initially, two technical working groups were established- "Departures Technical

Working Group”, which focused on topics specific to northern San Mateo County communities related to departing flights, and the “Arrivals Technical Working Group”, which focused on topics specific to impacts of arriving flights predominately over the communities of southern San Mateo County. The groups can meet together as a single technical working group (such as in the efforts to draft the 2016 *FAA Initiative* response document) at the discretion of the Chairperson.

Suggested structure and scheduled:

- 7-9 members
- Meet on quarterly basis and/or as-needed basis

Dave Ong (AIR)

From: Nastasja von Conta (AIR)
Sent: Tuesday, January 15, 2019 10:06 AM
To: Aroyse@hillsborough.net
Cc: James A Castañeda; Bert Ganoung (AIR); Dave Ong (AIR)
Subject: Hillsborough Noise Monitoring Report
Attachments: Supplement Aircraft Noise Terminology Metric.pdf; Hillsborough Noise Monitoring Report FINAL.pdf

Dear Mr. Royse,

Please find attached the Short Term Aircraft Noise Monitoring report from a residence in Hillsborough. Also attached is an Aircraft Noise Terminology & Metric Supplement to help explain some of the terms used in the report. SFO will continue to work with the Airport Community Roundtable, the Federal Aviation Administration (FAA), and airlines operating here at SFO to mitigate aircraft noise in affected communities.

If you have any questions about this report feel free to reach out to me.

Best,
Nastasja



Nastasja von Conta

Senior Aircraft Noise Abatement Specialist | Planning, Design & Construction
San Francisco International Airport | P.O. Box 8097 | San Francisco, CA 94128
Tel 650-821-5107 | flysfo.com

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MEMORANDUM

TO: HILLSBOROUGH COMMUNITY
FROM: SAN FRANCISCO INTERNATIONAL AIRPORT AIRCRAFT NOISE
ABATEMENT OFFICE
SUBJECT: SHORT-TERM NOISE MONITORING REPORT
DATE: JANUARY 10, 2019

The San Francisco International Airport (SFO) Aircraft Noise Abatement Office (ANAO) conducted short-term aircraft noise monitoring in Hillsborough, about 4 miles from the Airport, to determine noise levels within the community from aircraft operations at SFO. Noise monitoring occurred October 20th through November 12th, 2018. Due to the noise monitor power failure, no data was recorded on October 24-29. The noise monitoring was extended and 18 full days are included in this analysis. The monitoring was made possible with the assistance of a Hillsborough resident.

Living near the end of the airport runways and behind departing aircraft, Hillsborough community is exposed to noise that is very different to that from overflights. During ground operations, low-frequency noise may become a disturbance. These operations include engine maintenance run-ups, reverse thrust on landing to slow the aircraft to a safe stop, and most importantly back blast in areas behind aircraft taxiing and taking off. SFO has restricted aircraft engine run-up activity during nighttime hours and has designated locations on the airfield furthest away from communities for high power run-ups. An engine run is required to test aircraft engine after aircraft maintenance is complete.

SFO represents almost all aircraft noise disturbances in Hillsborough. On a typical day, SFO has about 650 departures and 650 arrivals. Given the short distance from the Airport, Hillsborough noise monitor registered a daily average of 190 noise events, almost exclusively from SFO departures. The noise monitor thresholds were set at 50dBA for the entire monitoring period. The overall average daily noise level from all aircraft was 48dBA CNEL. The Community daily noise level was 51dBA CNEL. Noise from all aircraft over this location increased the total average daily noise level by 1.6dBA. Non-aircraft noise sources included residential noise. An average sound exposure level (SEL) for a single noise event for all aircraft were recorded at 68dBA and match the average Community SEL which means that aircraft events are typically as loud as other residential noise events. Maximum noise levels (LMax) averaged 56dBA. On an average night between midnight and 6 am, there were 21 noise events.

During the noise-monitoring period, SFO ANAO received 52 noise reports from three individuals, distributed evenly throughout the day with a slight increase in the nighttime hours, and except one individual being disturbed consistently at 4 pm. Sleep hours are typically most disturbing to noise reporters even though this is the time when SFO operations are at their lowest. It is because, at night, the ambient or background noise is lower than during the day. When ambient noise is lower, noise that occurs above the background noise will seem louder.

The monitoring location in Hillsborough is located in a canyon, which causes aircraft back blast sound to propagate differently. Also being a quiet community with ambient noise levels of 46dBA and given a higher number of morning noise events all of the above might contribute to the increasing annoyance of the residents.

dBa- stands for A-weighted decibel. Decibel unit measures the loudness of a sound and is computed as the signal to noise ratio. A-weighting is used to adjust for the frequency range of human hearing. The human ear perceives an increase of ten decibels as a doubling of noise.

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 an acceptable level of aircraft noise of 65dBA CNEL.

Short Term Noise Monitoring Report - Site 1000 Hillsborough 2018

October 20 - November 12

Aircraft CNEL: **48dBA**
 Community CNEL: **51dBA**
 Total CNEL: **53 dBA**
 SEL: **68dBA**
 LMax: **56dBA**
 Ambient Noise: **46dBA**
 Noise Monitor Treshold: **50dBA**
 SFO Aircraft Noise Events: **187 per day**
 SFO Operations Flow: **West Flow**
 Cause of Aircraft Noise: **SFO departures take off noise**



Note: Due to the noise monitor power failure, no data was recorded on October 24-29. The noise monitoring was extended and 18 full days are included in the analysis.

Daily Noise Event Averages

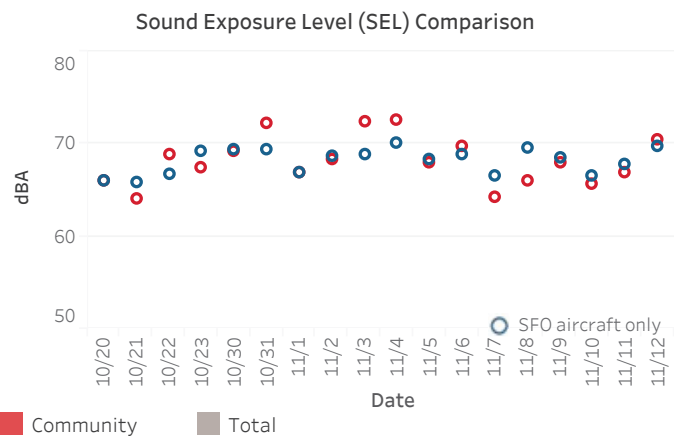
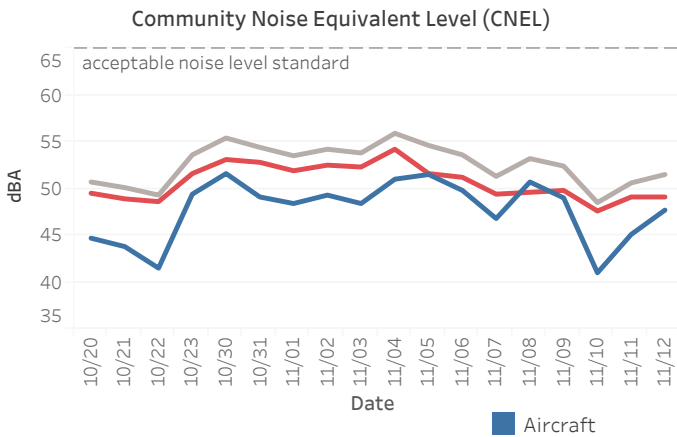
Date	Noise Events	SFO		Noise Events	Non-SFO		Community		
		Avg. SEL (dBA)	Avg. LMax (dB)		Avg. SEL (dBA)	Avg. LMax (dB)	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)
October 20	134	66	54	19	70	55	66	66	55
October 21	122	66	54	26	67	54	35	64	54
October 22	60	67	55	21	69	57	40	69	54
October 23	136	69	56	25	68	55	92	67	55
October 30	180	69	56	22	69	56	319	69	55
October 31	246	69	56	42	70	56	185	72	56
November 1	278	67	55	35	67	54	102	67	54
November 2	193	69	55	21	70	56	146	68	54
November 3	240	69	56	27	70	56	78	72	56
November 4	262	70	56	34	70	56	250	73	56
November 5	327	68	55	29	66	54	104	68	55
November 6	268	69	56	14	68	55	72	70	56
November 7	179	67	55	30	65	54	53	64	54
November 8	217	69	57	16	68	56	76	66	55
November 9	167	69	57	5	65	56	73	68	56
November 10	103	67	56	4	64	54	79	66	56
November 11	131	68	56	5	64	55	102	67	56
November 12	124	70	57	8	73	57	108	70	57
Daily Average	187	68	56	21	68	55	110	68	55

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.

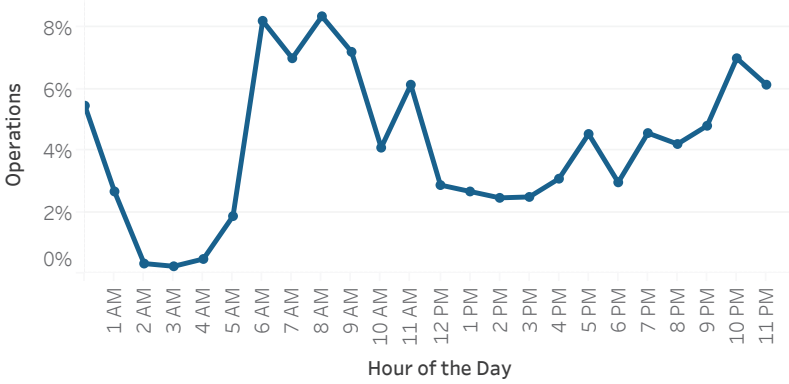


SFO Aircraft Noise Events by Day (7am-7pm), Evening (7pm-10pm) and Night (10pm-7am)

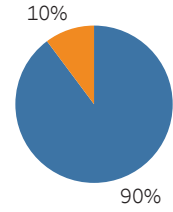
Day	Noise Events	SFO Noise Events (%)	Avg. SEL (dBA)	Min. SEL (dBA)	Max. SEL (dBA)	Avg. LMax (dB)	Min. LMax (dBA)	Max. LMax (dBA)	Avg. Duration (sec)	Min. Duration (sec)	Max. Duration (sec)
Day	1,817	54%	68	55	81	56	50	72	27	3	120
Evening	458	14%	67	50	77	55	50	66	25	1	120
Night	1,092	32%	69	58	82	56	50	72	28	8	120

SFO Noise Events by Hour of the Day

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



Airport
■ SFO
■ Other



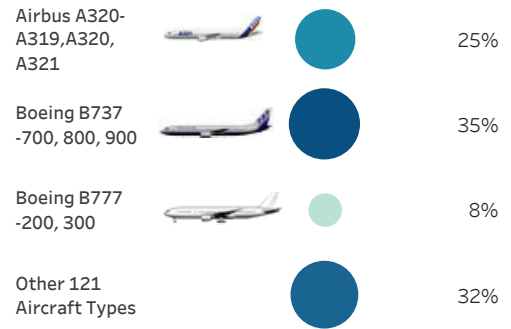
SFO Aircraft Altitude



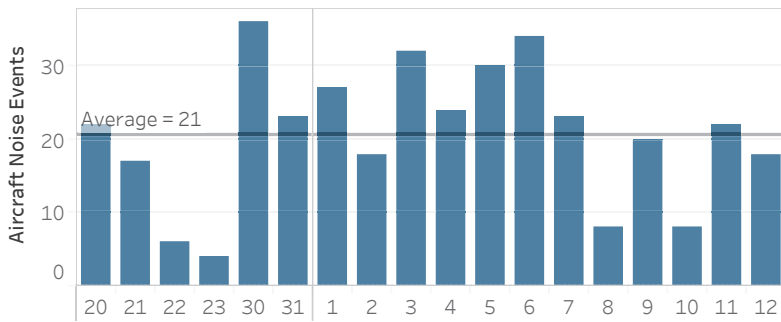
Operation Type



Aircraft Type



SFO Nighttime (midnight-6am)



29%

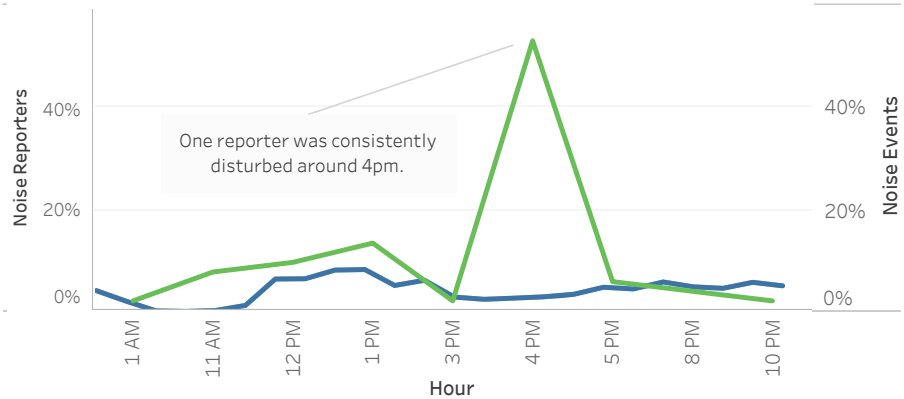
of flights registered a noise event.
 (687 avg daily flights of which 196 created a noise event)

Noise Reporters

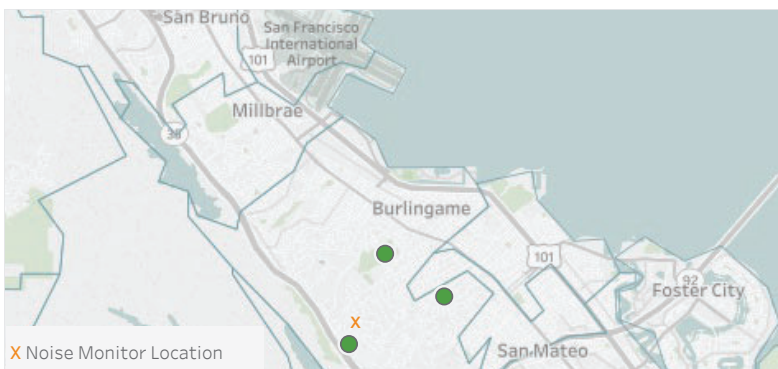
	Noise Reporters	Noise Reports
Oct 23	1	1
24	1	17
25	1	6
27	1	19
29	1	1
31	1	3
Nov 3	1	3
7	1	2
Total	3*	52

*Individual Reporters

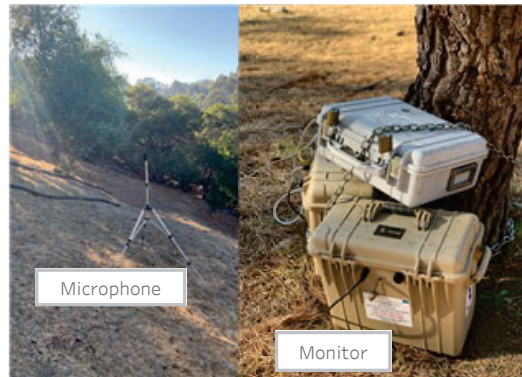
Noise Reporters vs Noise Events



Noise Reporters Location



Noise Monitor on Location



Dave Ong (AIR)

From: Dave Ong (AIR)
Sent: Monday, January 07, 2019 12:55 PM
To: 'annwengert@yahoo.com'; 'jdennis@portolavalley.net'
Cc: 'Sue Chaput'; Bert Ganoung (AIR); 'James A Castañeda'
Subject: 4Q 2018 Aircraft Noise Monitoring Results for Portola Valley
Attachments: 4Q 2018 Portola Valley Monitoring Report FINAL.pdf

Dear Honorable Ann Wengert,

Please find attached the aircraft noise monitoring results for 4Q 2018 noise measurements collected in the Town of Portola Valley. Past reports are also available online at [link](#), located under the Quarterly Portable Noise Monitoring section, then Portola Valley. If you have any questions or like to discuss the information provided, please don't hesitate to call our office at (650) 821-5100

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](#)

MEMORANDUM

TO: PORTOLA VALLEY COMMUNITY

**FROM: SAN FRANCISCO INTERNATIONAL AIRPORT AIRCRAFT NOISE
ABATEMENT OFFICE**

SUBJECT: 4Q 2018 PORTOLA VALLEY NOISE MONITORING REPORT

DATE: JANUARY 4, 2019

The San Francisco International Airport (SFO) Aircraft Noise Abatement Office (ANAO) conducts aircraft noise monitoring in the Town of Portola Valley to determine noise levels within the community from aircraft operations at SFO. Noise monitoring occurs every quarter for a 14-day data collection period. This quarter's measurement period was from November 8, 2018 to November 21, 2018. The monitoring was made possible with the assistance of a Portola Valley resident.

The overall average daily noise level from all aircraft was 40dBA CNEL. The Community daily noise level was 46dBA CNEL. Noise from all aircraft over this location increased the total average daily noise level by 1.4dBA. Non-aircraft noise sources included residential noise.

The Town of Portola Valley is a quiet suburban community with ambient noise levels of 42dBA. On an average day, Portola Valley had 178 overflights out of which 24 exceeded the noise monitor thresholds and recorded a noise event. The thresholds were 55dBA during the daytime and 50dBA for nighttime. 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 a 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.

As flights to SFO cross over the peninsula, they are typically between 5,000 and 7,000 feet, and represent about 90 percent of all aircraft noise events over Portola Valley. The remaining aircraft noise events are low-flying general aviation traffic using San Carlos Airport, Palo Alto Airport, and other airports. An average sound exposure level (SEL) for a single noise event for all aircraft were recorded at 74dBA and maximum noise levels (LMax) at 58dBA. SFO aircraft have lower SEL and LMax levels and are slightly quieter than the general aviation traffic as they overfly the area at higher altitudes. On average, there were two nighttime noise events from SFO aircraft. During the noise-monitoring period, SFO ANAO received noise reports from 25 individuals in Portola Valley primarily during the morning and nighttime hours. During these hours, there is a noticeable spike of noise reports disproportionate with aircraft noise events. Overall, it seems reasonable to assume that the morning and evening hours are most disturbing to Portola Valley reporters even though this is the time when SFO operations are at its lowest.

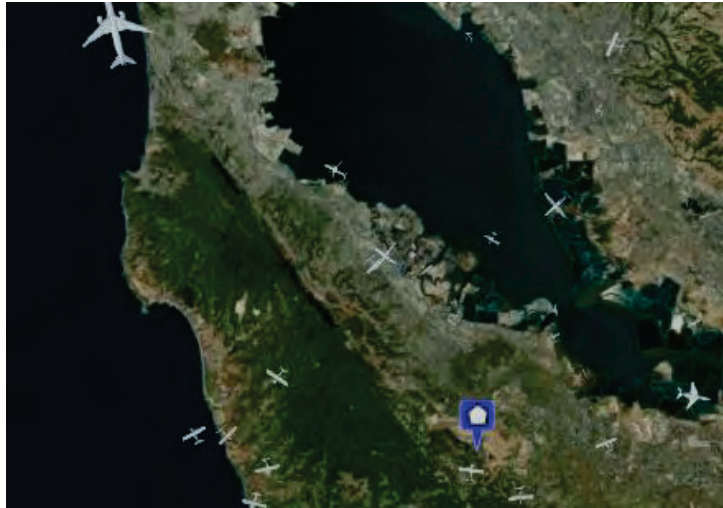
In view of the fact that the monitoring location in Portola Valley is located in a quiet suburb with ambient noise in the low 40dB range, any aircraft noise above this threshold may become a nuisance for the residents.

dBA- stands for A-weighted decibel. Decibel unit measures the loudness of a sound and is computed as the signal to noise ratio. A-weighting is used to adjust for frequency range of human hearing. An increase of ten decibels is perceived by human ear as a doubling of noise.
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.

Portola Valley 4Q 2018

November 8 - November 21

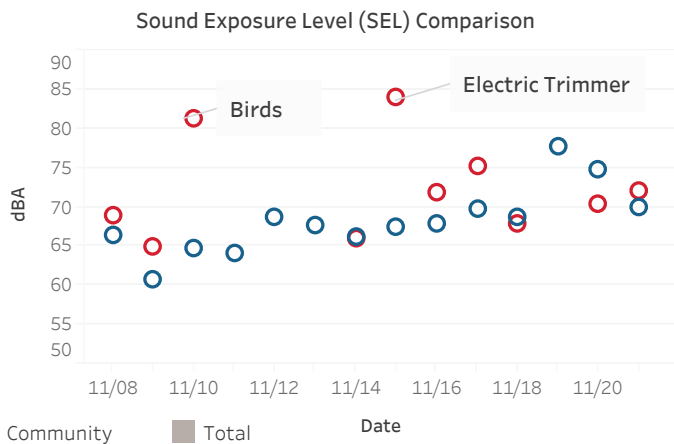
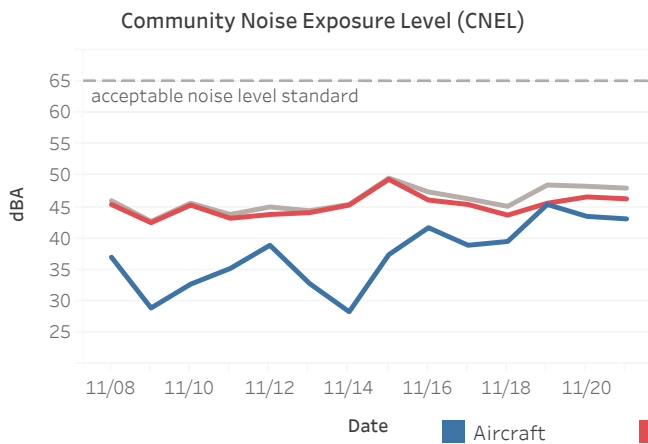
Aircraft CNEL: **40dBA**
 Community CNEL: **46dBA**
 Total CNEL: **47dBA**
 Aircraft SEL: **74dBA**
 Aircraft LMax: **58dBA**
 Ambient Noise: **42dBA**
 Noise Monitor Treshold: **55dBA(Day), 50dBA(Night)**
 SFO Aircraft Noise Events: **22 per day**
 SFO Operations Flow: **West Flow except on 11/21 (both West Flow and Southeast Flow)**
 Cause of Aircraft Overflights: **SFO aircraft arrivals, delayed vectoring and small general aviation aircraft transitioning the area**



Daily Noise Event Averages

Date	SFO			Non-SFO			Community		
	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)
8	22	66	57	9	73	61	2	69	63
9	4	61	52	1	73	62	1	65	57
10	11	65	55				4	81	72
11	18	64	54	3	66	58			
12	14	69	57	6	75	61			
13	12	68	57						
14	3	66	56	5	66	58	1	66	55
15	19	67	56	6	73	61	17	84	65
16	36	68	56	4	72	60	1	72	64
17	29	70	57	3	72	59	5	75	63
18	24	69	57	1	74	64	1	68	62
19	35	78	59	5	79	70			
20	38	75	58	4	70	59	3	70	59
21	45	70	59	7	71	60	4	72	60
Daily Average	22	68	57	5	72	61	4	72	64

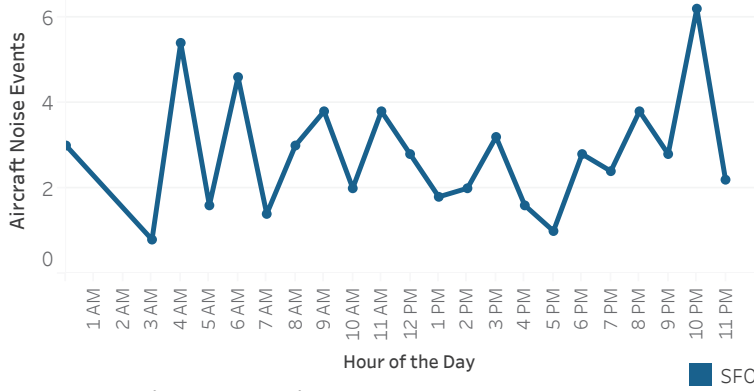
SFO Events are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft.
SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold 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.



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

Day	Noise Events	SFO Noise Events (%)	Avg. SEL (dBA)	Min. SEL (dBA)	Max. SEL (dBA)	Avg. LMax (dB)	Min. LMax (dBA)	Max. LMax (dBA)	Avg. Duration (sec)	Min. Duration (sec)	Max. Duration (sec)
Day	146	52%	74	62	92	59	55	81	15	5	59
Evening	45	16%	70	62	75	59	56	66	16	5	35
Night	88	32%	66	57	73	54	50	61	18	5	45

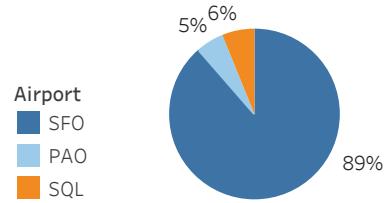
SFO Noise Events by Hour of the Day



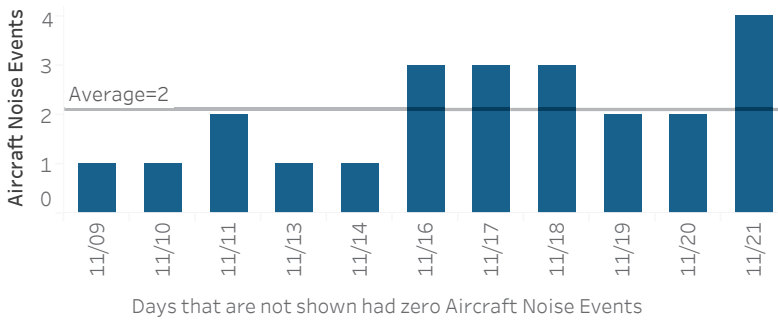
SFO Arrivals Altitude

Altitude	Percentage
4,000ft	12%
5,000ft	46%
6,000ft	28%
>7,000ft	13%

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

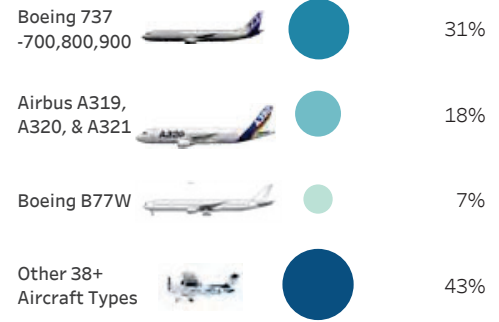


SFO Nighttime (Midnight-6am)



Operation Type	Arrivals	Departures
	86%	14%

Aircraft Type

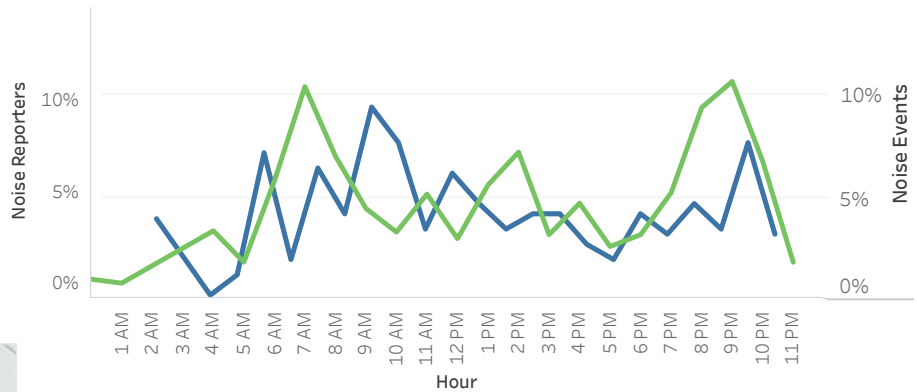


Noise Reporters

	Noise Reporters	Noise Reports
November 8	8	34
9	6	80
10	5	94
11	12	113
12	13	236
13	9	38
14	9	33
15	13	124
16	10	72
17	16	129
18	11	227
19	11	155
20	13	48
21	7	25
Total	25 *	1,408

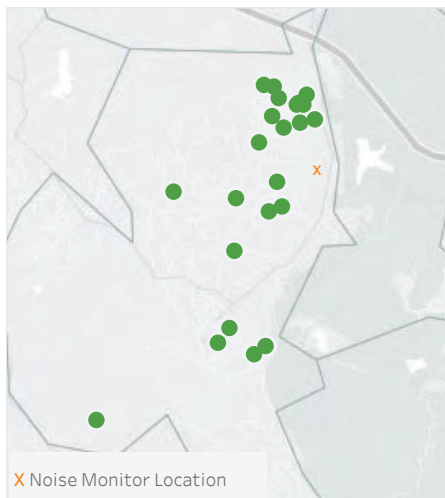
13% of overflights registered a noise event.
(178 avg daily overflights of which 24 created a noise event)

Noise Reporters vs Aircraft Noise Events



*Individual Reporters

Noise Reporters Location



Noise Monitor on Location



Dave Ong (AIR)

From: Dave Ong (AIR)
Sent: Wednesday, January 09, 2019 3:05 PM
To: 'c.shaw@woodsidesidetown.org'
Cc: Bert Ganoung (AIR); 'James A Castañeda'
Subject: 4Q 2018 Aircraft Noise Monitoring Results for Woodside VOR
Attachments: Woodside 4Q 2018 FINAL.pdf

Dear Honorable Chris Shaw,

Please find attached aircraft noise monitoring results for Fourth Quarter 2018, for noise measurements collected in the Town of Woodside. Past reports are also available online at [link](#), located under the Quarterly Portable Noise Monitoring section, then Woodside. If you have any questions or like to discuss the information provided, please don't hesitate to call our office at (650) 821-5100.

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 | fllysfo.com

[Facebook](#) | [Twitter](#) | [YouTube](#) | [Instagram](#) | [LinkedIn](#)

MEMORANDUM

TO: WOODSIDE COMMUNITY

**FROM: SAN FRANCISCO INTERNATIONAL AIRPORT AIRCRAFT NOISE
ABATEMENT OFFICE**

SUBJECT: 4Q 2018 WOODSIDE NOISE MONITORING REPORT

DATE: JANUARY 9, 2019

The San Francisco International Airport (SFO) Aircraft Noise Abatement Office (ANAO) conducts aircraft noise monitoring in the Town of Woodside to determine noise levels within the community from aircraft operations at SFO. The monitoring occurs every quarter for a 14-day data collection period. This quarter's measurement period was from November 8, 2018, to November 21, 2018. The monitoring is made possible with the assistance of the Federal Aviation Administration (FAA) San Jose Technical Operations team. They continue to provide support and participate in our efforts to collect noise data by allowing us access to their facility to monitor aircraft noise.

The overall average daily noise level from all aircraft was 42dBA CNEL. The Community daily noise level was 46dBA CNEL. Non-aircraft noise sources mainly included the wind and rain on November 21st. Noise from all aircraft over this location increased the total average daily noise level by 1.5dBA.

The Town of Woodside is a quiet suburban community with ambient noise levels of 42dBA. On an average day of this study, Woodside had 189 overflights out of which 50 exceeded the noise monitor thresholds and recorded a noise event. The thresholds were 52dBA during the daytime and 50dBA in the nighttime. Aircraft destined to SFO typically overfly Woodside during high traffic conditions or inclement weather days with aircraft vectoring. Also known as delay vectoring, it is when an FAA Air Traffic Controller instructs the pilot to fly specific headings. These headings are not the most direct path to the runways. Reasons for aircraft vectoring may 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.

As flights to SFO cross over the peninsula, they represent about 60 percent of all aircraft noise events over Woodside and are typically above 6,000 feet. The remaining 40 percent of aircraft were attributed to general aviation traffic using San Carlos Airport, and airline traffic using San Jose International Airport and Oakland International Airport. An average sound exposure level (SEL) for a single noise event for all aircraft were recorded at 70dBA and maximum noise levels (LMax) at 57dBA. SFO aircraft have lower SEL and LMax levels and are slightly quieter than other traffic as they overfly the area at higher altitudes. On average, there were five SFO nighttime noise events.

During the noise-monitoring period, SFO ANAO received noise reports from 9 individuals in Woodside. The majority of aircraft noise events occurred during the 8pm-10pm hour. The Town of Woodside is a quiet suburban community with ambient noise in the quiet 40-45dB range; any aircraft noise level above the background may become a nuisance for the residents.

dba- stands for A-weighted decibel. Decibel unit measures the loudness of a sound and is computed as the signal to noise ratio. A-weighting is used to adjust for a frequency range of human hearing. An increase of ten decibels is perceived by the human ear as a doubling of noise.

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 the acceptable level of aircraft noise of 65dBA CNEL.

Short Term Noise Monitoring Report - Site 969

Woodside 4Q 2018

November 8 - November 21

Aircraft CNEL: 42dBA

Community CNEL: 46dBA

Total CNEL: 47dBA

SEL: 70dBA

LMax: 57dBA

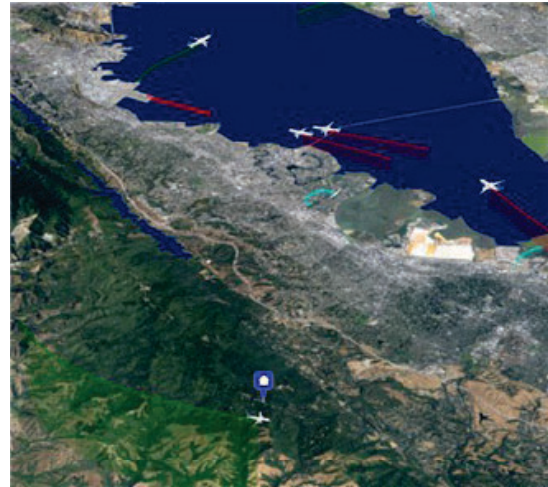
Ambient Noise: 42dBA

Noise Monitor Treshold: 52dBA (Day), 50dBA (Night)

SFO Aircraft Noise Events: 35 per day

SFO Operations Flow: West Flow except on 11/21 (both West Flow and Southeast Flow)

Cause of Aircraft Overflights: SFO Oceanic Arrival Route, delayed vectoring, nighttime delays, general aviation-small aircraft



Daily Noise Event Averages

Date	SFO			Non-SFO			Community		
	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)	Noise Events	Avg. SEL (dBA)	Avg. LMax (dB)
8	32	65	56	24	72	59	43	67	57
9	9	66	57	20	68	58	3	71	59
10	10	65	54	11	71	61	2	63	56
11	31	65	55	16	72	60	42	65	55
12	22	67	56	15	72	60	2	64	58
13	5	66	55	14	70	59			
14	10	65	55	10	67	57			
15	26	69	56	25	70	59	3	72	59
16	60	68	57	25	70	59	1	71	65
17	43	68	56	19	71	60	3	66	57
18	27	67	56	14	71	60			
19	65	69	57	19	73	59	24	71	58
20	68	70	57	33	74	60			
21	76	71	58	53	72	58	456 *	71	56
Daily Average	35	67	57	21	71	59	58	68	56

* Rain all day

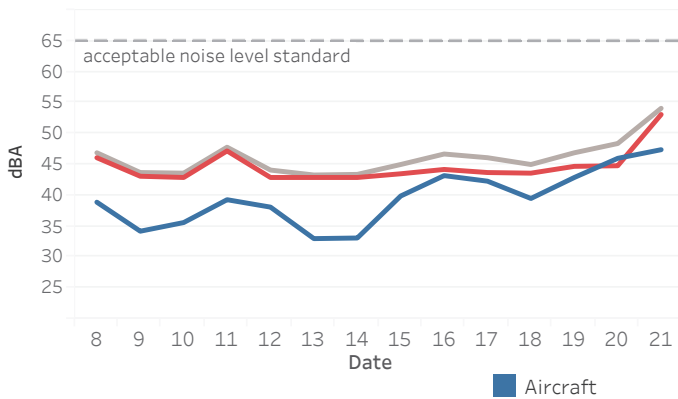
SFO Events are: Single SFO Aircraft, Multiple SFO Aircraft, Simultaneous SFO and Non-SFO Aircraft, and Simultaneous Community and SFO Aircraft.

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.

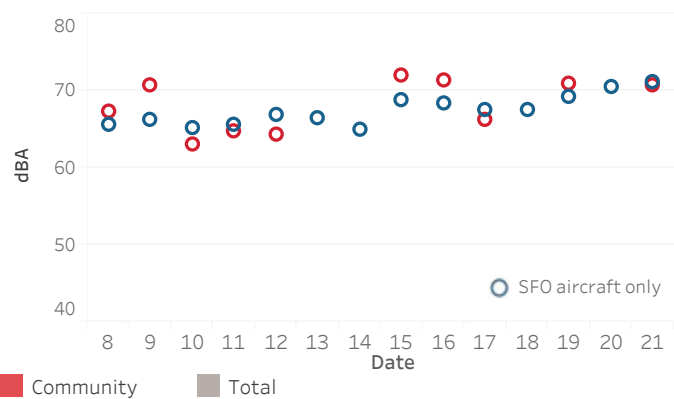
Lmax - The maximum noise level is a measurement of the peak level of a noise event.

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 Equivalent Level (CNEL)



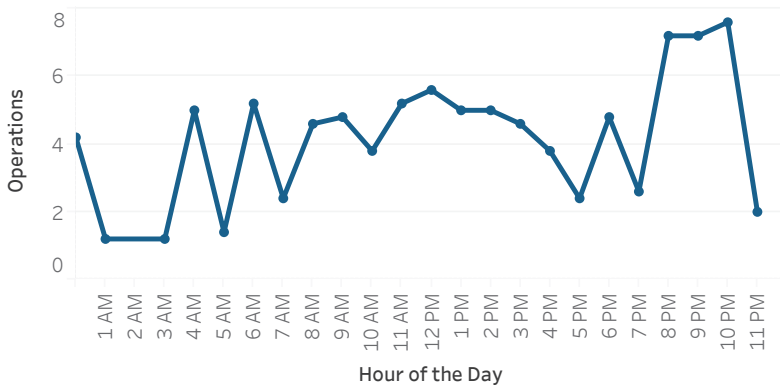
Sound Exposure Level (SEL) Comparison



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

Day	Noise Events	SFO Noise Events (%)	Avg. SEL (dBA)	Min. SEL (dBA)	Max. SEL (dBA)	Avg. LMax (dB)	Min. LMax (dBA)	Max. LMax (dBA)	Avg. Duration (sec)	Min. Duration (sec)	Max. Duration (sec)
Day	260	54%	69	58	81	57	52	69	20	5	60
Evening	85	18%	70	59	76	58	52	68	20	5	51
Night	139	29%	67	56	78	55	50	70	21	5	60

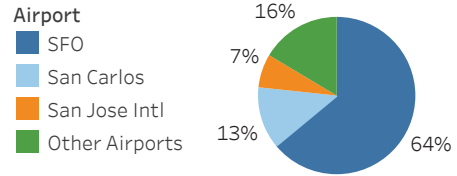
SFO Noise Events by Hour of the Day



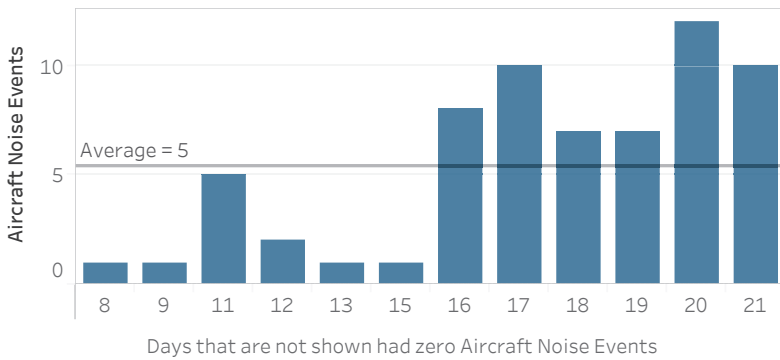
SFO Aircraft Altitude

	<6000ft	≥6000ft	≥7000ft	≥8,000ft	≥9,000ft
Arrivals	27%	32%	27%	13%	1%
Departures	16%		1%		83%

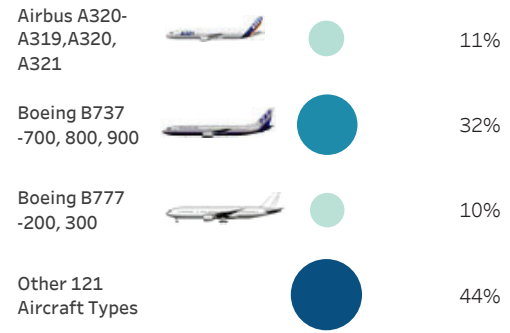
Only aircraft that registered a noise event on the monitor are considered.



SFO Nighttime (midnight-6am)



Aircraft Type



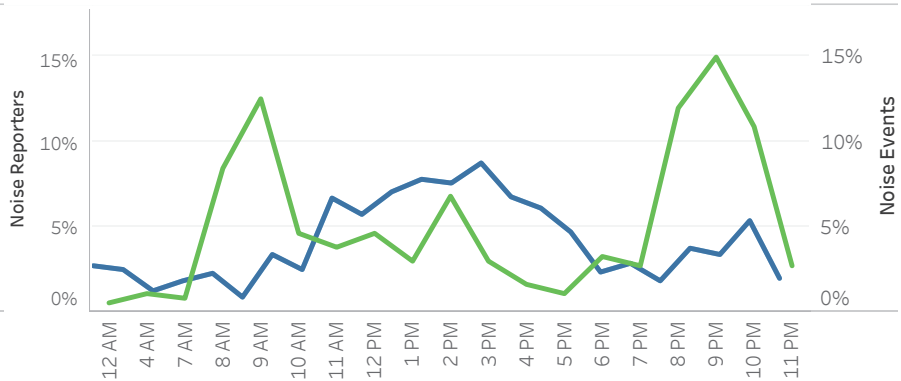
Noise Reporters

Day	Noise Reporters	Noise Reports
November 8	5	37
9	3	4
10	3	14
11	3	17
12	3	21
13	2	15
14	4	11
15	3	31
16	5	33
17	5	12
18	5	31
19	5	40
20	7	55
21	5	41
Total	9*	362

26%

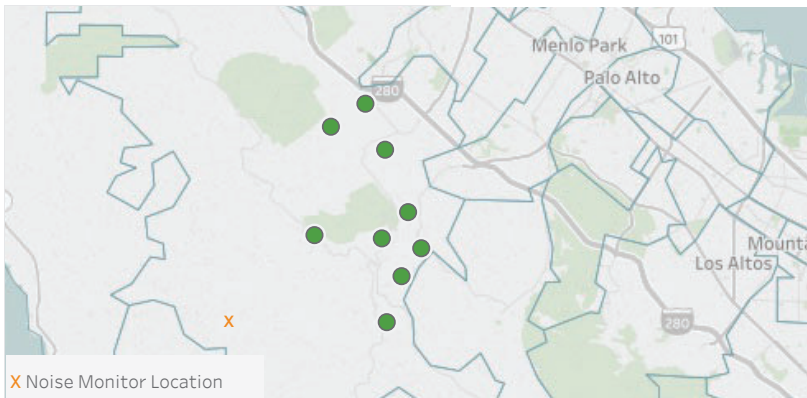
of overflights registered a noise event.
(189 avg daily overflights of which 50 created a noise event)

Noise Reporters vs Noise Events



* Individual Reporters

Noise Reporters Location



Hour

Noise Monitor on Location





January 09, 2019

TO: Roundtable Members and Interested Parties

FROM: Bryan Lynch, Consultant
Justin W. Cook – INCE, LEED GA, Principal Consultant
Roundtable Technical Consultant - HMMH

SUBJECT: Federal Aviation Administration (FAA) Instrument Flight Procedures (IFP) Information Gateway Review

At the request of the Roundtable, Harris Miller Miller & Hanson Inc. (HMMH) is monitoring and reviewing updates to procedures published onto the FAA's IFP Information Gateway in the regions of San Francisco International Airport (SFO), Metropolitan Oakland International Airport (OAK), and Norman Y. Mineta San Jose International Airport (SJC).

After analyzing the documents posted, HMMH determines what changes are proposed and the reason for the changes. The FAA IFP Information Gateway published updates on December 7th and 21st of 2018, and January 3rd of 2019. Six (6) of the changes were considered to be of low importance, and zero (0) of high importance. The next publication is expected to be on January 31, 2019 pending resolution of the shutdown of the US Federal Government.

Important Terms and Items:

- FAA Stage Definitions
 1. FPT: Procedures are coordinated with Air Traffic, Tech Ops and Airports for feasibility, preparation and priority (FPO)
 2. DEV: Development of the procedures
 3. FC: FAA Flight Inspection of the developed procedures
 4. PIT: Production Integration Team (TS)
 5. CHARTING: Procedures at AeroNav Products Charting for publication (NACO)
- FAA Status Definitions
 1. At Flight Check: At Flight Inspection for procedure validation
 2. Awaiting Publication: At AeroNav Products Charting for publication
 3. Complete: Procedure development action finished
 4. On Hold: Procedure waiting data/information to allow it to proceed/continue to next stage
 5. Pending: Procedure development work on-going
 6. Published: Procedure charted and published
 7. Under Development: Procedure is being worked on by the FAA
 8. Terminated: Procedure/project terminated

HMMH FAA IFP Information Gateway Review

January 9, 2019

Page 2 of 3

- Glossary
 - RNAV: Area Navigation
 - IAP: Instrument Approach procedure
 - STAR: Standard Terminal Arrival Route
 - SID: Standard Instrument Departure
 - GPS: Global Positioning System
 - ILS: Instrument Landing System
 - LOC: Localizer

Low Importance:

- December 7, 2018
 - STAR EL NIDO FIVE at SJC scheduled for cancellation date of April 25, 2019
- December 21, 2018
 - STAR PIRAT (RNAV) ONE at SFO stage change to Charting with scheduled publish date of February 28, 2019
 - STAR PANOCHE SIX at OAK stage change to FC with status of At Flight Check and scheduled publish date of April 25, 2019
- January 3, 2019
 - ILS OR LOC RWY 28 L AMDT 27A at SFO stage change to PUBLISHED
 - Airport diagram pictorial amended to reflect airside construction
 - STAR DYAMD (RNAV) FIVE at SFO stage change to PUBLISHED
 - The minimum crossing altitude at the FRELY navigational point was lowered by 600 feet from at or above 8600 feet above Mean Sea Level (MSL) to at or above 8000 feet MSL
 - Previously identified as a change of “High Importance” in HMMH FAA IFP Information Gateway Review memorandum dated October 18, 2018
 - ILS OR LOC RWY 28R, AMDT 15A at SFO stage change to PUBLISHED
 - Airport diagram pictorial amended to reflect airside construction

High Importance:

- None

Open Comment Periods:

- STAR PANOCHE SIX at OAK comment period ends: January 18, 2019
 - Email concerns can be sent here:
https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/?event=procedure.results&tab=coordination&nasrlid=OAK#searchResultsTop

Next Publication:

We expect to see updates for the following on the January 31, 2019 publication:

HMMH FAA IFP Information Gateway Review

January 9, 2019

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- SFO
 - STAR PIRAT (RNAV) ONE
 - Currently “Awaiting Publication (NFDC)”
 - ILS OR LOC RWY 28L, AMDT, AMDT 27B
 - Currently “Under Development”
- SJC
 - SID LOUPE FIVE
 - Currently “At Flight Check”
 - STAR ROBIE FIVE
 - Currently “At Flight Check”
- OAK
 - STAR PANOCHE SIX
 - Currently “At Flight Check”