San Francisco International
Airport/Community Roundtable

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

MEETING PACKET

Meeting No. 302

Wednesday, August 3, 2016 - 7:00 p.m.

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

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

AGENDA

1. Call to Order / Roll Call / Declaration of a Quorum Present
ACTION
Cliff Lentz, Roundtable Chairperson / James A. Castaneda, AICP, Roundtable Coordinator

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

CONSENT AGENDA ITEMS

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

3. Review of Airport Director's Report

ACTION

4. Review of Roundtable Regular Meeting Overview for April 6, 2015
ACTION

REGULAR AGENDA

5. Review of SFO FlyQuiet Report for Q2 2016 pg. 83
INFORMATION
Bert Ganoung, Manager - Aircraft Noise Abatement Office

6. Airport Director's Comments
INFORMATION
Ivar Satero, Director – San Francisco International Airport

7. FAA Subject Matter Presentation
INFORMATION
FAA Staff

8. Update, Roundtable Response to FAA Initiative Results to Address Noise Concerns
INFORMATION / ACTION
Cindy Gibbs, Roundtable Aviation Technical Consultant

***** Materials for this item are provided as a separate publication to accompany this meeting packet ****

OTHER MATTERS

9. Airport Noise Briefing
INFORMATION
Cindy Gibbs, Roundtable Aviation Technical Consultant

10. Member Communications / Announcements
INFORMATION
Roundtable Members and Staff

11. Adjourn
ACTION
Roundtable Chairperson

Next Scheduled Roundtable Regular Meeting Date: Wednesday, October 5, 2016

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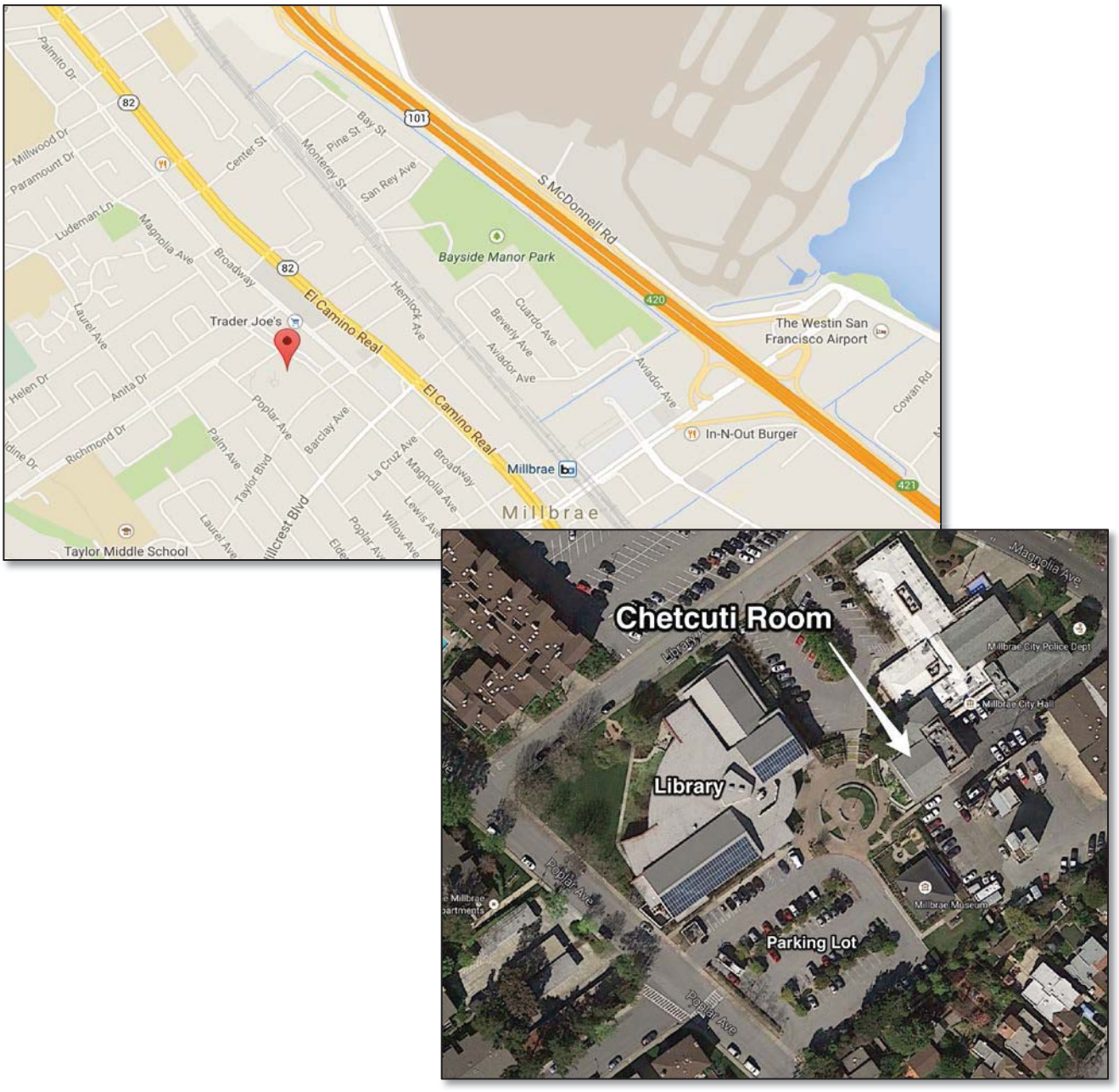
REGULAR MEETING LOCATION

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

Access through Millbrae Library parking lot on Poplar Avenue



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ABOUT THE AIRPORT/COMMUNITY ROUNDTABLE

OVERVIEW

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 2016, 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." (49 U.S.C. A. Section 1302(a)(1)).

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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, Agenda 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:
CLIFF LENTZ
Representative, City of Brisbane
clifflentz@ci.brisbane.ca.us

Vice-Chairperson:
ELIZABETH LEWIS
Representative, Town of Atherton
elewis@ci.atherton.ca.us

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

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MEMBERSHIP ROSTER JUNE 2016
REGULAR MEMBERS

CITY AND COUNTY OF SAN FRANCISCO BOARD OF SUPERVISORS
Representative: Vacant
Alternate: Vacant

CITY AND COUNTY OF SAN FRANCISCO MAYOR'S OFFICE
David Takashima, Representative
Alternate: Edwin Lee, Mayor

CITY AND COUNTY OF SAN FRANCISCO AIRPORT COMMISSION REPRESENTATIVE
John L. Martin, 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 OF SAN MATEO COUNTY (C/CAG) AIRPORT LAND USE COMMITTEE (ALUC)
Adam Kelly, Representative
Alternate: Vacant

TOWN OF ATHERTON
Elizabeth Lewis, Council Member/**Roundtable Vice-Chairperson**
Alternate: Bill Widmer, Council Member

CITY OF BELMONT
Douglas Kim , Council Member
Alternate: Vacant

CITY OF BRISBANE
Cliff Lentz, Council Member/**Roundtable Chairperson**
Alternate: Lori Liu, Council Member

CITY OF BURLINGAME
Ricardo Ortiz, Council Member
Alternate: Vacant

MEMBERSHIP ROSTER JUNE 2016

CITY OF DALY CITY
Raymond Buenaventura, Mayor
Alternate: Vacant

CITY OF FOSTER CITY
Sam Hindi, Council Member
Alternate: Vacant

CITY OF HALF MOON BAY
Deborah Ruddock, Council Member
Alternate: Marina Fraser, Council Member

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

CITY OF MENLO PARK
Peter Ohtaki, Council Member
Alternate: Vacant

CITY OF MILLBRAE
Ann Schneider, Council Member
Alternate: Vacant

CITY OF PACIFICA
Sue Digre, Council Member
Alternate: Vacant

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

CITY OF REDWOOD CITY
Janet Borgens, Council Member
Alternate: Vacant

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

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

CITY OF SAN MATEO
Rick Bonilla, Council Member
Alternate: Vacant

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

TOWN OF WOODSIDE
Deborah Gordon, Mayor
Alternate: Vacant

ROUNDTABLE ADVISORY MEMBERS

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

FEDERAL AVIATION ADMINISTRATION
Andy Richards, SFO Air Traffic Control Tower
Don Kirby, Northern California Terminal Radar Approach Control (NORCAL TRACON)
Tony DiBernardo, FAA District Manager – Sierra-Pacific District

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ROUNDTABLE STAFF/CONSULTANTS

James A. Castañeda, AICP, Roundtable Coordinator
Cynthia Gibbs, Roundtable Aviation Technical Consultant (BridgeNet International)

SAN FRANCISCO INTERNATIONAL AIRPORT NOISE ABATEMENT STAFF

Bert Ganoung, Noise Abatement Manager
David Ong, Noise Abatement Systems Manager
Ara Balian, Noise Abatement Specialist
John Hampel, Noise Abatement Specialist
Nastasja Gjorek, Noise Abatement Specialist
William Brown, Noise Abatement Specialist
Joyce Satow, Noise Abatement Office Administration Secretary

CONSENT AGENDA

Regular Meeting # 302
August 3, 2016

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Airport Director's Report

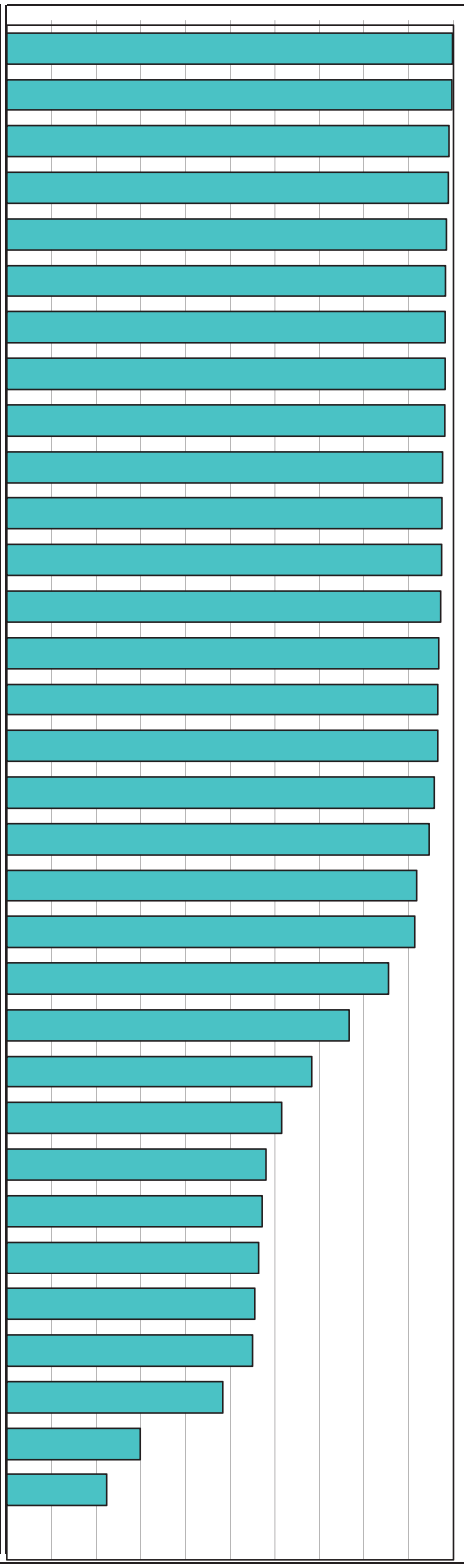
Aircraft Noise Abatement Office
November 2015

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **November 2015**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
FRONTIER AIRLINES	FFT	1	449	2	***9.98***
SkyWest Airlines	SKW	22	6,623	3	***9.97***
DELTA	DAL	20	2,145	9	***9.90***
Virgin America	VRD	34	3,138	11	***9.89***
Compass Airlines	CPZ	12	803	15	***9.84***
中國東方航空 CHINA EASTERN	CES	1	60	17	***9.82***
AIRFRANCE	AFR	1	58	17	***9.82***
SWISS	SWR	1	57	18	***9.82***
Alaska	ASA	18	985	18	***9.81***
Aer Lingus	EIN	1	44	23	***9.76***
Southwest	SWA	60	2,489	24	***9.75***
jetBlue	JBU	25	991	25	***9.73***
American Airlines	AAL	73	2,708	27	***9.72***
AEROMEXICO.	AMX	5	162	31	***9.68***
UNITED	UAL	308	9,327	33	***9.65***
HAWAIIAN AIRLINES	HAL	4	120	33	***9.65***
AIR CANADA	ACA	16	394	41	***9.57***
BRITISH AIRWAYS	BAW	6	117	51	***9.46***
FedEx	FDX	6	77	78	***9.18***
CopaAirlines	CMP	5	61	82	***9.14***
Avianca	TAI	12	87	138	***8.55***
ATLAS AIR	GTI	19	86	221	***7.68***
SINGAPORE AIRLINES	SIA	36	119	303	***6.82***
JAPAN AIRLINES	JAL	22	60	367	***6.15***
ETIHAD	ETD	24	60	400	***5.80***
NCA Nippon Cargo Airlines	NCA	20	49	408	***5.71***
CHINA AIRLINES	CAL	37	89	416	***5.63***
EVA AIR	EVA	58	137	423	***5.55***
CATHAY PACIFIC	CPA	63	147	429	***5.50***
Philippines	PAL	29	59	492	***4.84***
KALITTA AIR	CKS	4	6	667	***3.00***
KOREAN AIR	KAL	91	123	740	***2.23***
ASIANA AIRLINES	AAR	99	104	952	***0.00***
TOTAL		**1,133**	**31,934**	**6,512**	

Noise Exceedance Quality Rating



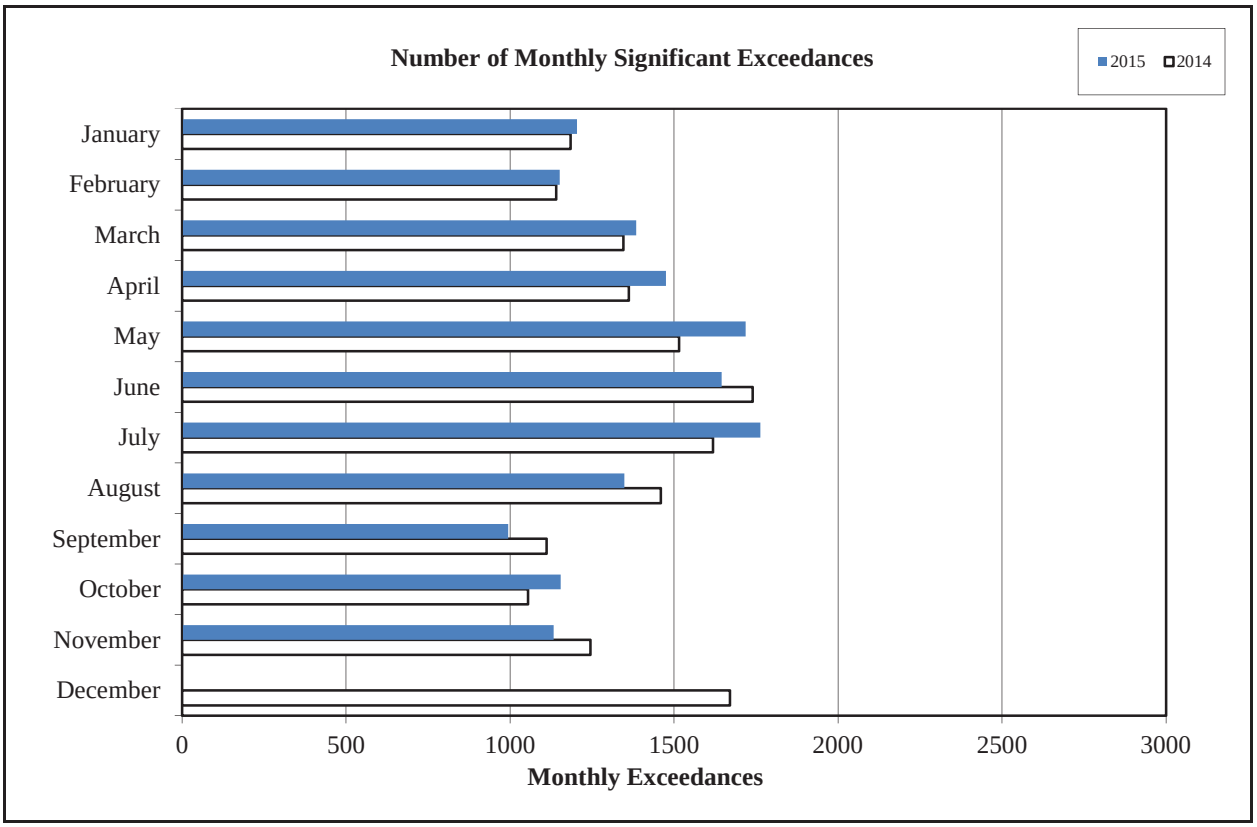
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **November 2015**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2011	2012	2013	2014	2015	Change from Last Year
January	1,580	1,378	1,428	1,184	1,204	**20**
February	1,429	1,581	1,176	1,141	1,151	**10**
March	1,681	1,703	1,671	1,345	1,384	**39**
April	1,900	1,870	1,910*	1,362	1,475	**113**
May	2,024	1,912	1,859*	1,515	1,718	**203**
June	1,947	2,355	1,915	1,740	1,645	**-95**
July	2,017	2,621	1,647	1,619	1,763***	**144**
August	1,847	1,823	1,638**	1,460	1,348	**-112**
September	1,609	1,464	1,352	1,111	994	**-117**
October	1,572	1,689	1,277	1,055	1,154	**99**
November	1,575	1,421	1,262	1,245	1,133	**-112**
December	1,447	1,439	1,160	1,670		**0**
Annual Total	20,628	21,256	18,295	16,447	14,969	
Year to Date Trend	**20,628**	**21,256**	**18,295**	**16,447**	**14,969**	**192**

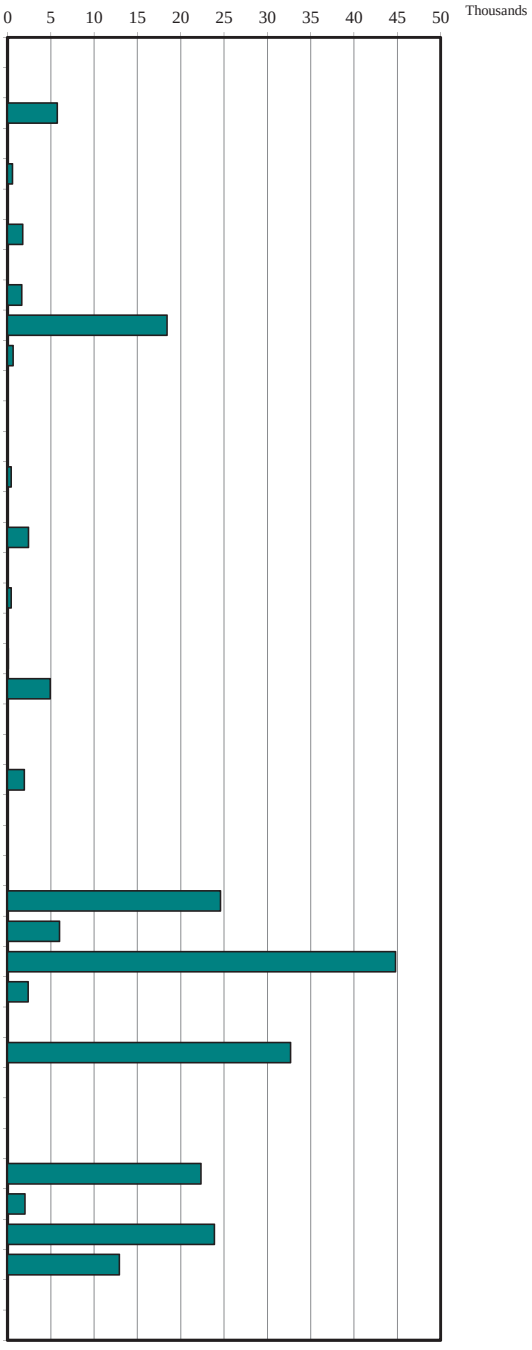
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

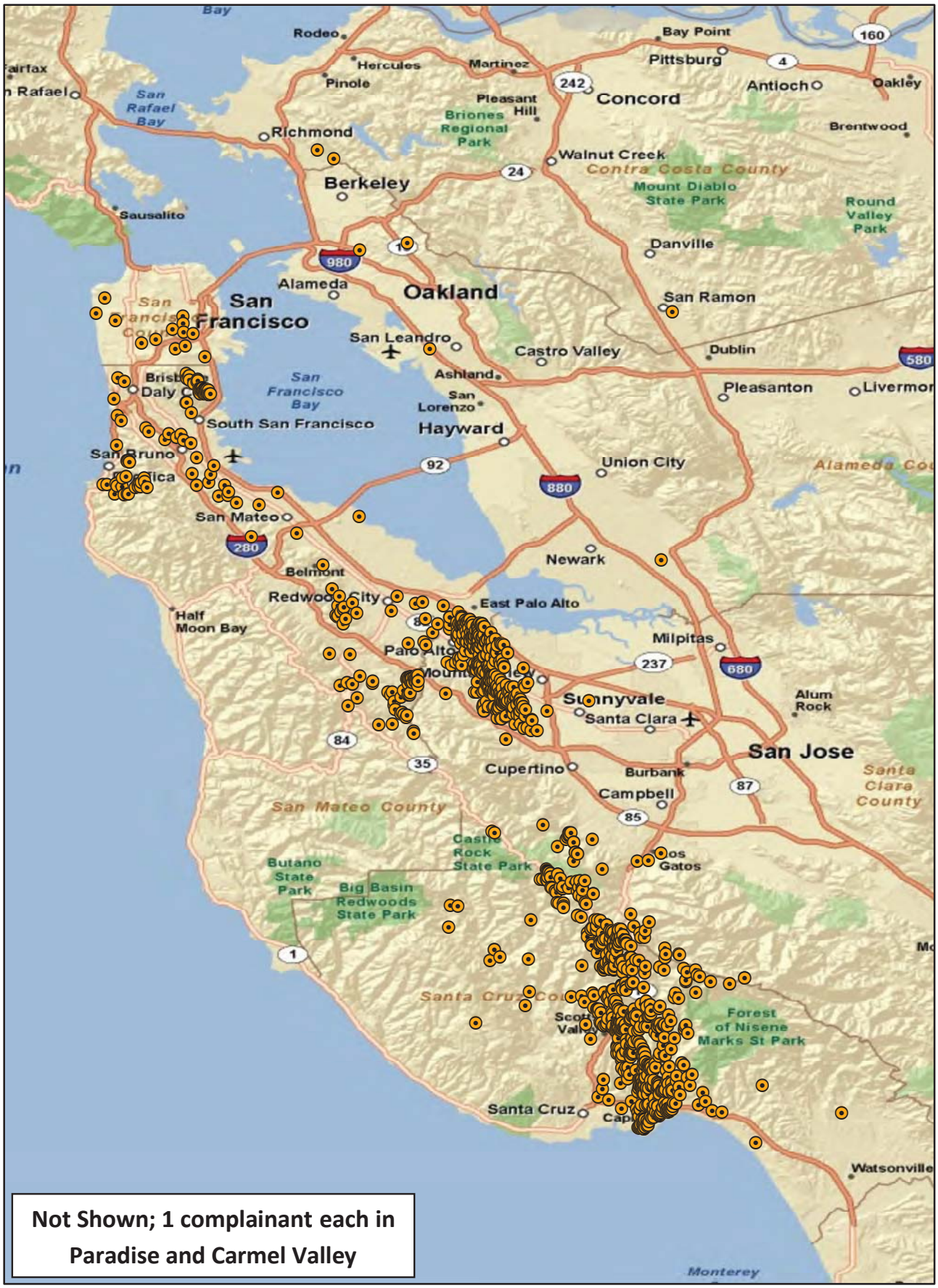
Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Callers
Roundtable Communities		
Atherton	1	1
Belmont	2	1
Brisbane	5,766	51
Burlingame	6	6
Daly City	593	3
Foster City	1	1
Menlo Park	1,746	20
Millbrae	19	5
Pacifica	1,651	28
Portola Valley	18,437	58
Redwood City	667	19
San Bruno	5	4
San Carlos	2	2
San Francisco	37	13
San Mateo	441	3
South San Francisco	20	8
Woodside	2,432	6
Other Communities		
Aptos	445	8
Ben Lomond	12	3
Boulder Creek	118	8
Capitola	4,955	45
Carmel Valley	2	1
El Cerrito	3	1
Felton	1,943	9
Fremont	1	1
Kensington	5	1
La Selva Beach	60	1
Los Altos	24,576	150
Los Altos Hills	5,997	16
Los Gatos	44,805	214
Mountain View	2,372	15
Oakland	2	2
Palo Alto	32,663	206
Paradise	1	1
San Leandro	1	1
San Ramon	1	1
Santa Cruz	22,351	162
Saratoga	2,022	21
Scotts Valley	23,890	106
Soquel	12,914	127
Sunnyvale	25	1
Watsonville	1	1
	210,991	**1,331**



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

Monthly Noise Complaint Summary Map November 2015

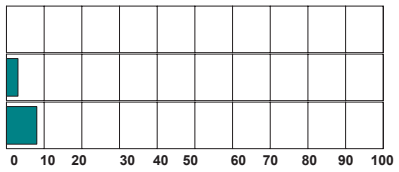


"Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified 'default city' values."

Caller Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **November 2015**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
DELTA	DAL	1	0.9	7%
UNITED	UAL	4	0.9	29%
American Airlines	AAL	9	6.7	64%
Total		**14**		



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

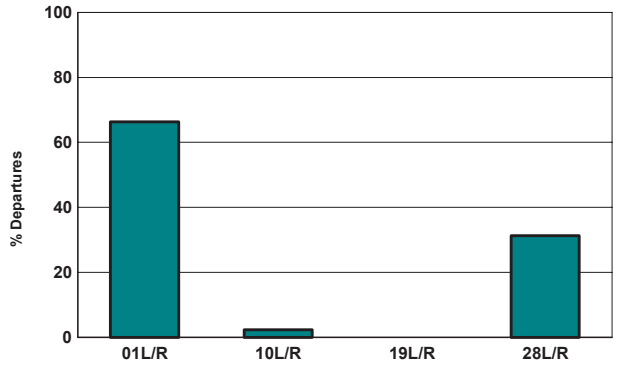
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: November 2015
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

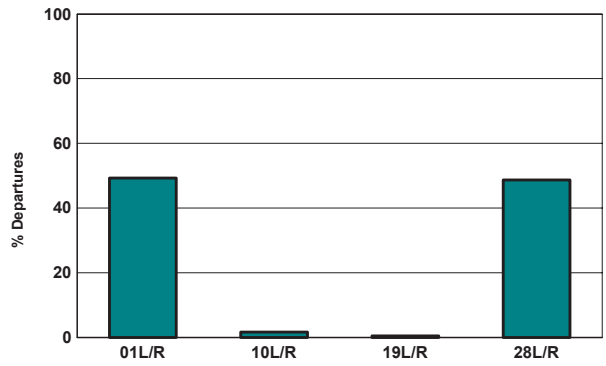
Monthly Jet Departures

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*YTD*
01L/R	99	72	114	178	206	259	303	302	247	235	199	-	2,214
10L/R	5	22	6	17	1	-	-	2	9	4	7	-	73
19L/R	-	22	-	-	-	-	-	-	-	-	-	-	22
28L/R	81	82	181	226	262	269	270	240	244	239	94	-	2,188
Total	**185**	**198**	**301**	**421**	**469**	**528**	**573**	**544**	**500**	**478**	**300**	**-**	**4,497**
01L/R	54%	36%	38%	42%	44%	49%	53%	56%	49%	49%	66%	0%	49%
10L/R	3%	11%	2%	4%	0%	0%	0%	0%	2%	1%	2%	0%	2%
19L/R	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	44%	41%	60%	54%	56%	51%	47%	44%	49%	50%	31%	0%	49%

Current Month (1 am to 6 am)



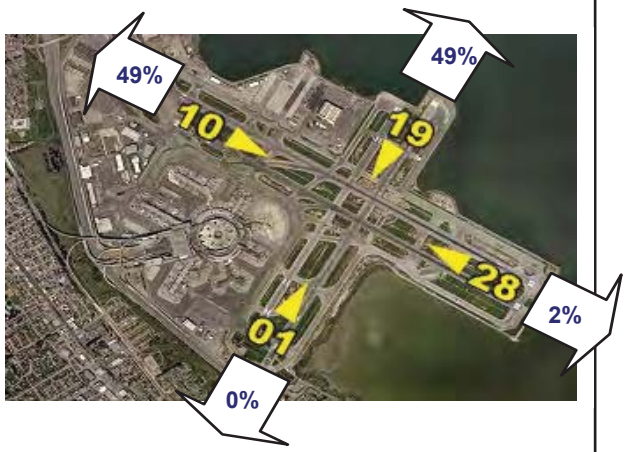
Year-to-Date (1am to 6 am)



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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



Numbers rounded to nearest whole percentages

Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: November 2015
Time of Day : All Hours

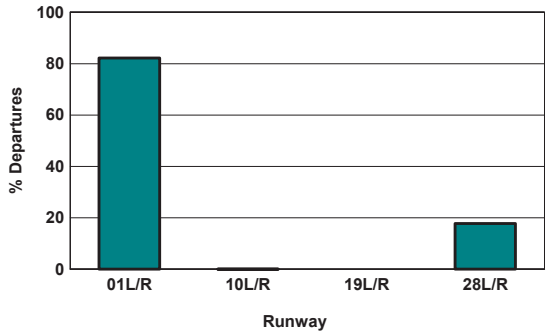
San Francisco International Airport

Runway Utilization (All Hours)

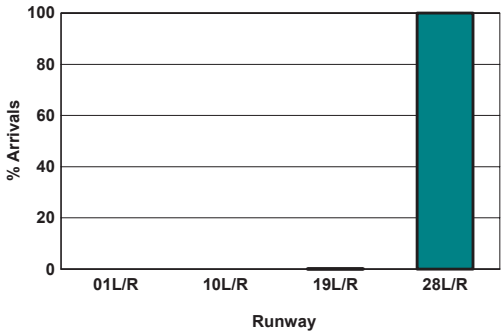
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	13,544	20	0	2,930	16,494
Arrivals	0	0	9	16,510	16,519
Percentage Utilization					
Departures	82.1%	0.1%	0.0%	17.8%	100%
Arrivals	0.0%	0.0%	0.1%	99.9%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the June 1, 2016
Airport Community Roundtable Meeting

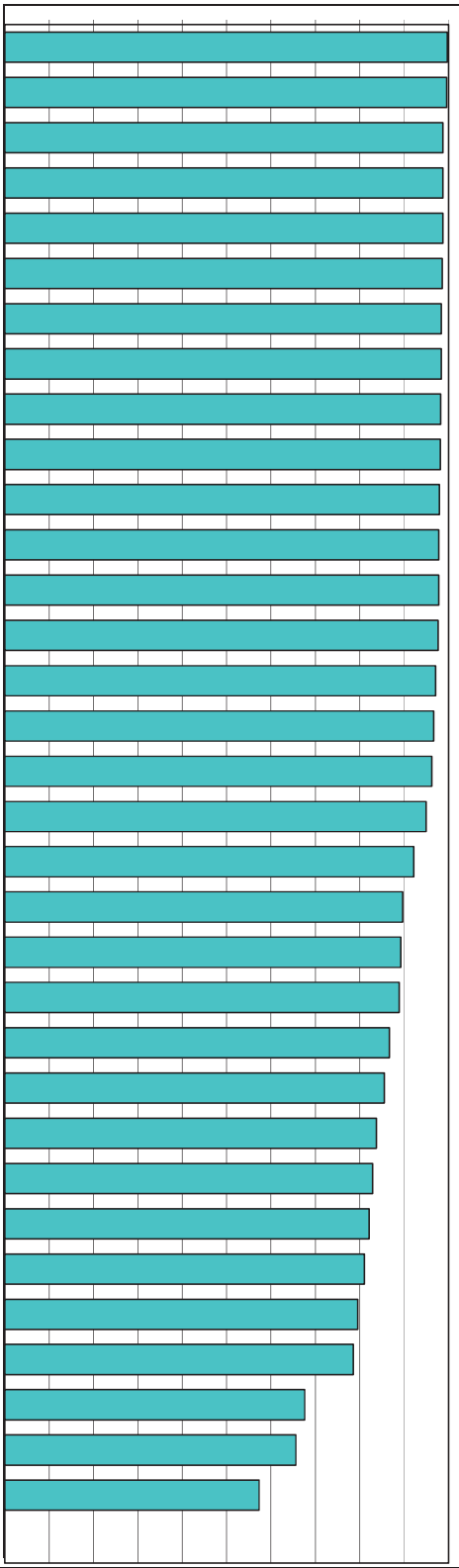
Aircraft Noise Abatement Office
December 2015

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **December 2015**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
SkyWest	SKW	40	6,607	6	***9.97***
virgin atlantic	VIR	1	103	10	***9.96***
sun country airlines	SCX	4	141	28	***9.87***
FRONTIER AIRLINES	FFT	14	490	29	***9.87***
Virgin america	VRD	95	3,230	29	***9.87***
DELTA	DAL	65	1,993	33	***9.86***
Alaska	ASA	36	983	37	***9.84***
Compass Airlines	CPZ	20	544	37	***9.84***
HAWAIIAN AIRLINES	HAL	5	124	40	***9.82***
Southwest	SWA	103	2,445	42	***9.81***
UNITED	UAL	440	9,361	47	***9.79***
American Airlines	AAL	134	2,707	50	***9.78***
jetBlue	JBU	49	971	50	***9.78***
AEROMEXICO.	AMX	10	190	53	***9.77***
AIR CANADA	ACA	30	458	66	***9.71***
BRITISH AIRWAYS	BAW	9	118	76	***9.66***
Lufthansa	DLH	9	106	85	***9.62***
FedEx.	FDX	11	97	113	***9.50***
CopaAirlines	CMP	11	62	177	***9.21***
Avianca	TAI	28	120	233	***8.96***
ETIHAD	ETD	15	62	242	***8.92***
Atlas Air	GTI	23	92	250	***8.89***
Philippines	PAL	24	80	300	***8.67***
NCA Nippon Cargo Airlines	NCA	15	46	326	***8.55***
SINGAPORE AIRLINES	SIA	45	123	366	***8.37***
AIR INDIA	AIC	10	26	385	***8.29***
JAPAN AIRLINES	JAL	25	62	403	***8.21***
CHINA AIRLINES	CAL	41	96	427	***8.10***
EVA AIR	EVA	64	139	460	***7.95***
CATHAY PACIFIC	CPA	73	151	483	***7.85***
KOREAN AIR	KAL	86	118	729	***6.76***
ASIANA AIRLINES	AAR	89	115	774	***6.56***
KALITTA AIR	CKS	48	50	960	***5.73***
QANTAS	QFA	36	16	2,250	***0.00***
TOTAL		**1,708**	**32,026**	**9,596**	

Noise Exceedance Quality Rating



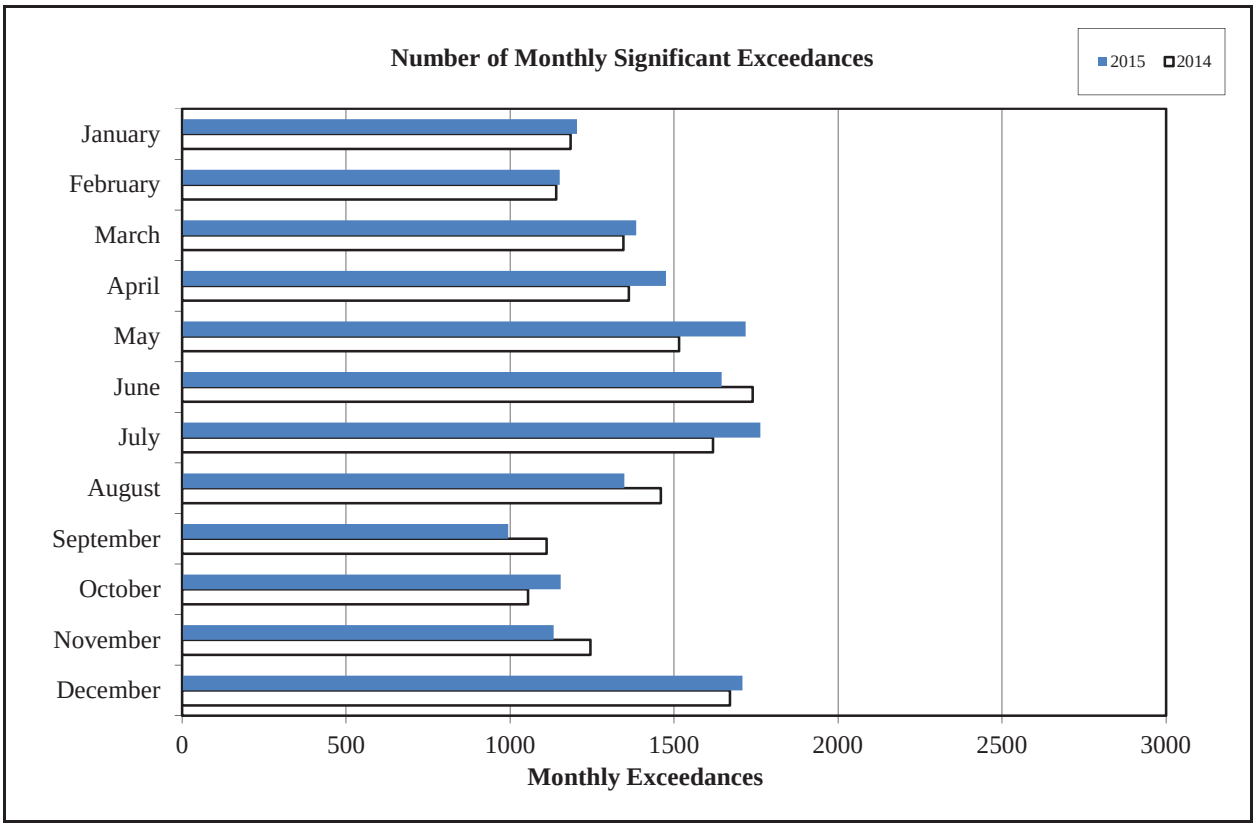
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **December 2015**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2011	2012	2013	2014	2015	Change from Last Year
January	1,580	1,378	1,428	1,184	1,204	**20**
February	1,429	1,581	1,176	1,141	1,151	**10**
March	1,681	1,703	1,671	1,345	1,384	**39**
April	1,900	1,870	1,910*	1,362	1,475	**113**
May	2,024	1,912	1,859*	1,515	1,718	**203**
June	1,947	2,355	1,915	1,740	1,645	**-95**
July	2,017	2,621	1,647	1,619	1,763***	**144**
August	1,847	1,823	1,638**	1,460	1,348	**-112**
September	1,609	1,464	1,352	1,111	994	**-117**
October	1,572	1,689	1,277	1,055	1,154	**99**
November	1,575	1,421	1,262	1,245	1,133	**-112**
December	1,447	1,439	1,160	1,670	1,708	**38**
Annual Total	20,628	21,256	18,295	16,447	16,677	
Year to Date Trend	**20,628**	**21,256**	**18,295**	**16,447**	**16,677**	**230**

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

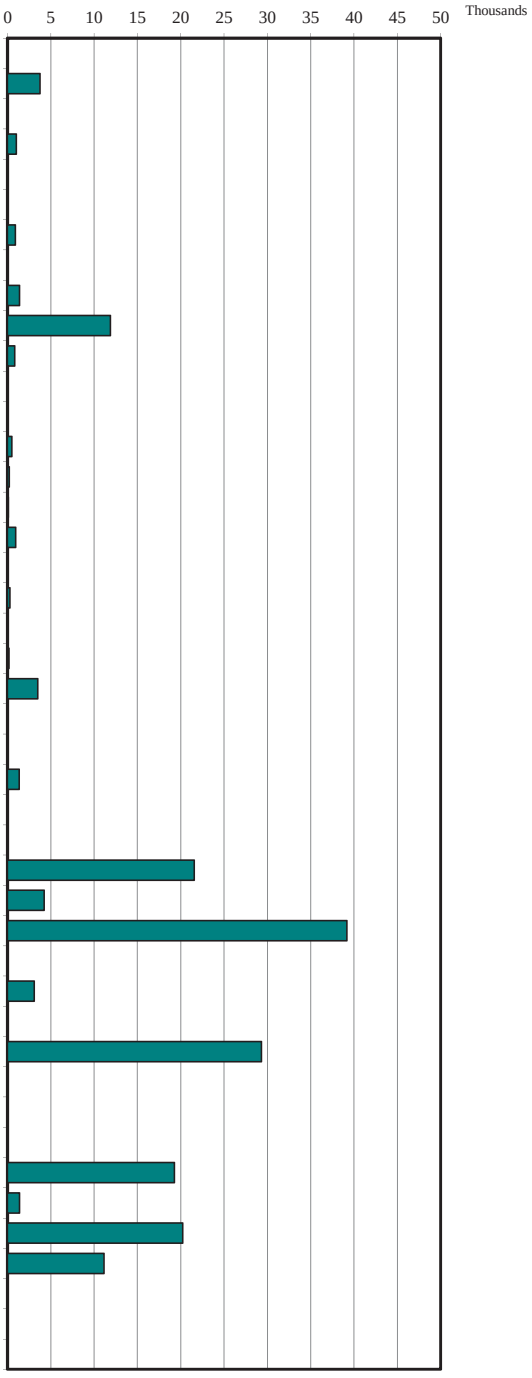


Monthly Noise Complaint Summary
San Francisco International Airport -- Director's Report
Period: **December 2015**

Monthly Calls by Community

Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Callers
Roundtable Communities		
Belmont	12	3
Brisbane	3,753	46
Burlingame	12	9
Daly City	1,034	3
East Palo Alto	15	1
Foster City	12	2
Menlo Park	914	20
Millbrae	6	2
Pacifica	1,390	39
Portola Valley	11,875	56
Redwood City	850	11
San Bruno	1	1
San Carlos	8	3
San Francisco	496	17
San Mateo	195	8
South San Francisco	92	10
Woodside	946	6
Other Communities		
Aptos	301	9
Ben Lomond	16	1
Boulder Creek	182	5
Capitola	3,486	41
Carmel Valley	13	3
Danville	1	1
Felton	1,360	9
Fremont	1	1
La Selva Beach	22	1
Los Altos	21,565	165
Los Altos Hills	4,238	15
Los Gatos	39,189	212
Moraga	1	1
Mountain View	3,079	22
Oakland	32	9
Palo Alto	29,329	223
Piedmont	23	1
San Leandro	1	1
Santa Clara	33	1
Santa Cruz	19,285	157
Saratoga	1,387	16
Scotts Valley	20,214	104
Soquel	11,154	132
Sunnyvale	10	4
The Sea Ranch	2	1
Watsonville	5	1
	176,540	**1,373**



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

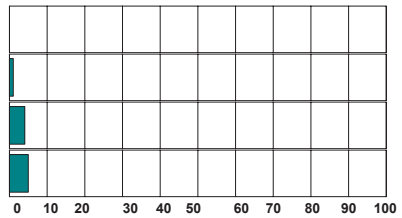
Monthly Noise Complaint Summary Map December 2015

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

Caller Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **December 2015**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
Compass Airlines	CPZ	1	3.7	7%
jetBlue	JBU	2	4.1	14%
UNITED	UAL	5	1.1	36%
American Airlines	AAL	6	4.4	43%
Total		**14**		



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

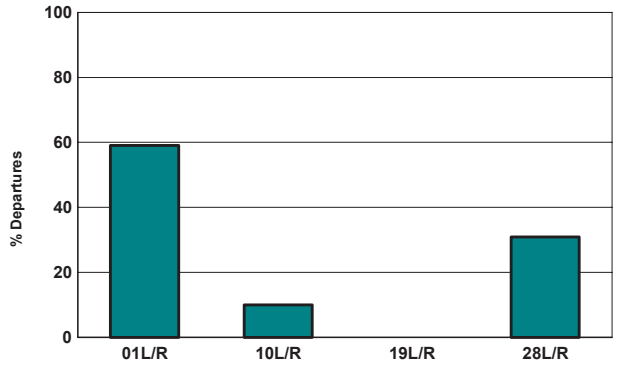
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: December 2015
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

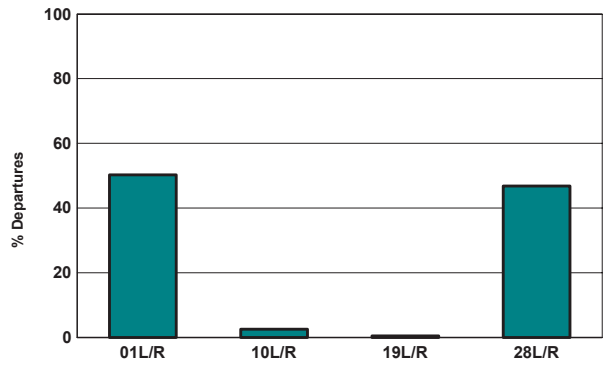
Monthly Jet Departures

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*YTD*
01L/R	99	72	114	178	206	259	303	302	247	235	199	300	2,514
10L/R	5	22	6	17	1	-	-	2	9	4	7	51	124
19L/R	-	22	-	-	-	-	-	-	-	-	-	-	22
28L/R	81	82	181	226	262	269	270	240	244	239	94	157	2,345
Total	**185**	**198**	**301**	**421**	**469**	**528**	**573**	**544**	**500**	**478**	**300**	**508**	**5,005**
01L/R	54%	36%	38%	42%	44%	49%	53%	56%	49%	49%	66%	59%	50%
10L/R	3%	11%	2%	4%	0%	0%	0%	0%	2%	1%	2%	10%	2%
19L/R	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	44%	41%	60%	54%	56%	51%	47%	44%	49%	50%	31%	31%	47%

Current Month (1 am to 6 am)



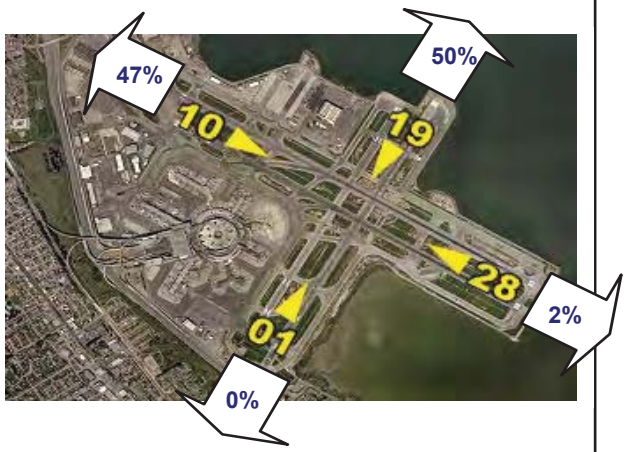
Year-to-Date (1am to 6 am)



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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



Numbers rounded to nearest whole percentages

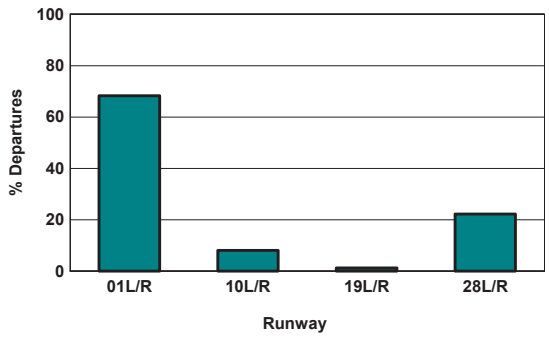
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: December 2015
Time of Day : All Hours

Runway Utilization (All Hours)

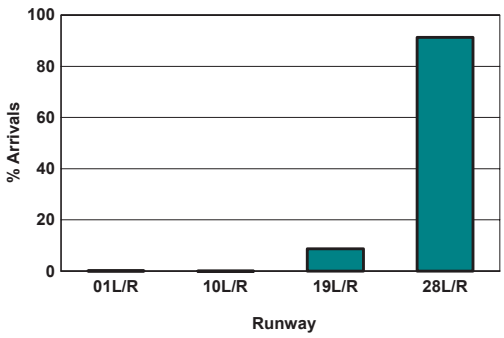
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	11,298	1,339	224	3,677	16,538
Arrivals	15	1	1,429	15,040	16,485
Percentage Utilization					
Departures	68.3%	8.1%	1.4%	22.2%	100%
Arrivals	0.1%	0.0%	8.7%	91.2%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the June 1, 2016
Airport Community Roundtable Meeting

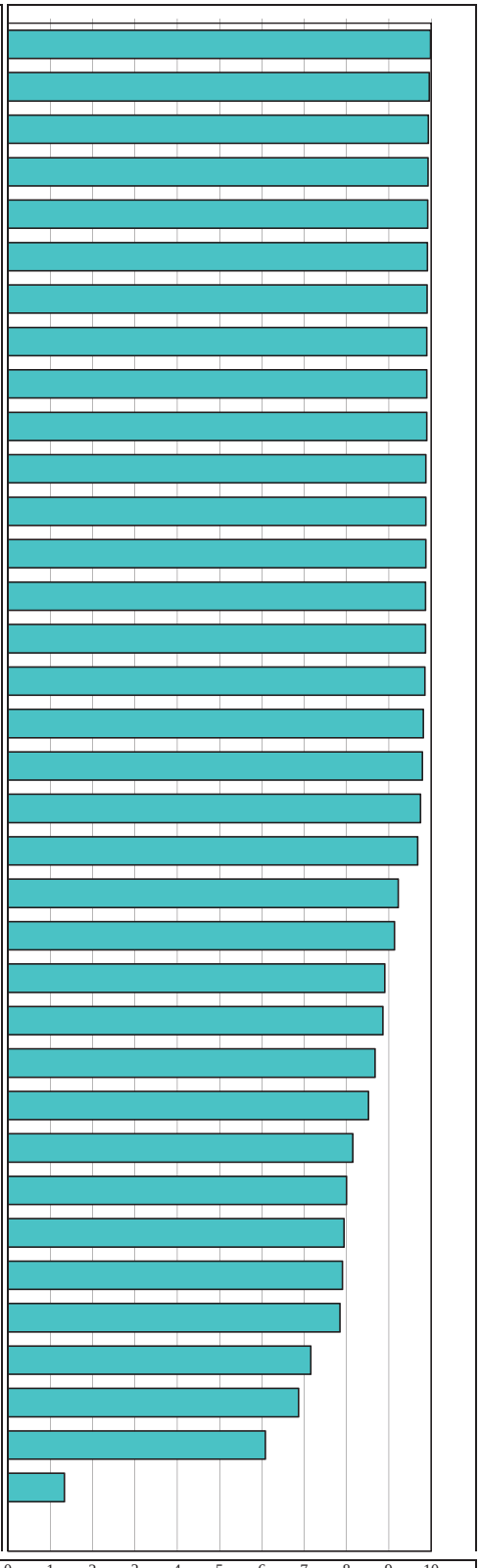
Aircraft Noise Abatement Office
January 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **January 2016**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
SkyWest Airlines	SKW	24	6,542	4	***9.99***
Sun Country Airlines	SCX	1	84	12	***9.95***
SWISS	SWR	1	62	16	***9.94***
Alaska	ASA	19	983	19	***9.92***
Virgin Atlantic	VIR	2	102	20	***9.92***
Frontier Airlines	FFT	8	368	22	***9.91***
Delta	DAL	46	1,905	24	***9.90***
Compass Airlines	CPZ	18	717	25	***9.90***
Virgin America	VRD	78	3,094	25	***9.90***
Lufthansa	DLH	3	118	25	***9.90***
Southwest	SWA	75	2,418	31	***9.88***
British Airways	BAW	4	124	32	***9.87***
Hawaiian Airlines	HAL	4	124	32	***9.87***
Air China	CCA	2	60	33	***9.87***
Air Canada	ACA	15	446	34	***9.87***
United	UAL	320	8,529	38	***9.85***
American Airlines	AAL	114	2,475	46	***9.82***
Aeromexico	AMX	9	174	52	***9.79***
jetBlue	JBU	61	976	63	***9.75***
FedEx	FDX	7	87	80	***9.68***
Atlas Air	GTI	16	82	195	***9.22***
Avianca	TAI	23	106	217	***9.13***
Copa Airlines	CMP	17	62	274	***8.90***
Air India	AIC	8	28	286	***8.86***
Singapore Airlines	SIA	41	124	331	***8.68***
Etihad	ETD	23	62	371	***8.52***
Philippines	PAL	38	82	463	***8.15***
Japan Airlines	JAL	31	62	500	***8.00***
EVA Air	EVA	70	136	515	***7.94***
Cathay Pacific	CPA	79	151	523	***7.91***
China Airlines	CAL	56	104	538	***7.85***
Korean Air	KAL	76	107	710	***7.16***
Nippon Cargo Airlines	NCA	36	46	783	***6.87***
Asiana Airlines	AAR	95	97	979	***6.08***
Kalitta Air	CKS	39	18	2,167	***1.33***
Qantas	QFA	110	44	2,500	***0.00***
TOTAL		**1,569**	**30,699**	**11,985**	

Noise Exceedance Quality Rating



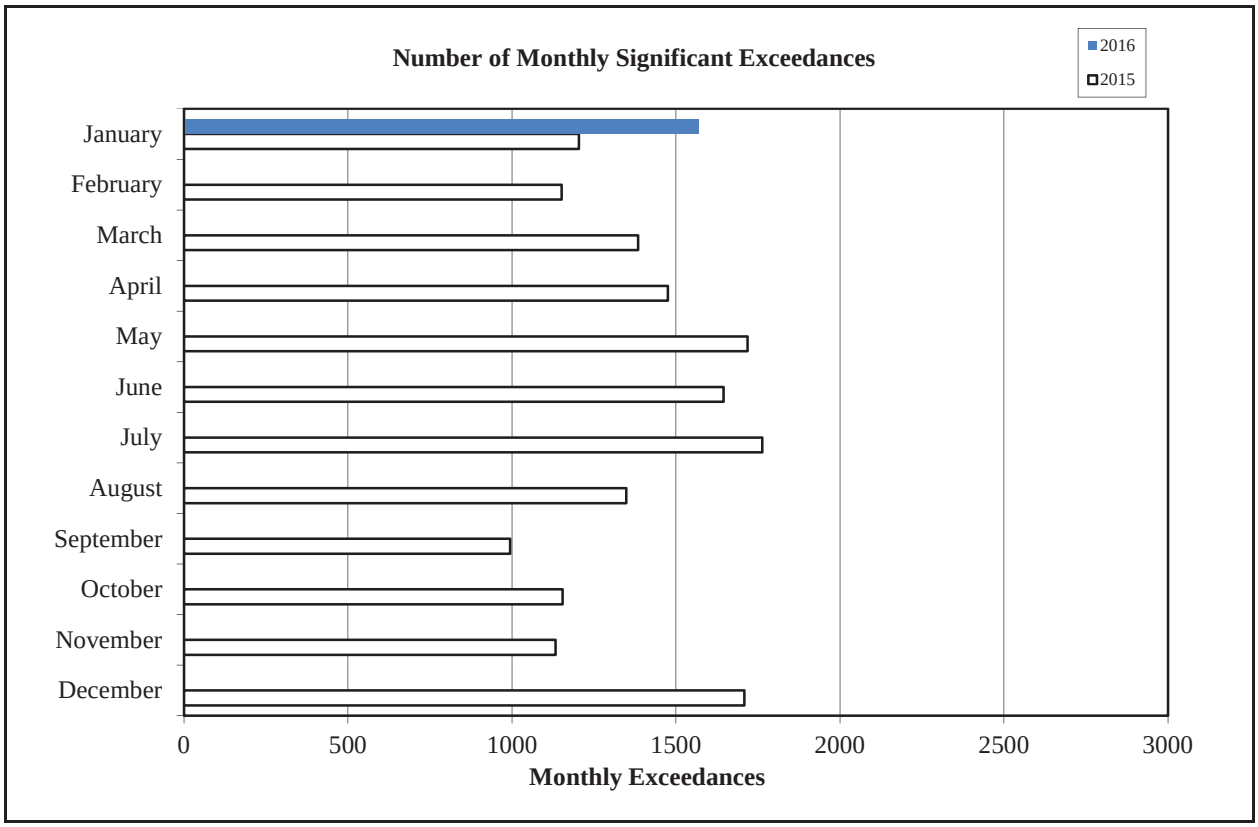
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **January 2016**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2012	2013	2014	2015	2016	Change from Last Year
January	1,378	1,428	1,184	1,204	1,569	**365**
February	1,581	1,176	1,141	1,151		**0**
March	1,703	1,671	1,345	1,384		**0**
April	1,870	1,910*	1,362	1,475		**0**
May	1,912	1,859*	1,515	1,718		**0**
June	2,355	1,915	1,740	1,645		**0**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	1,569	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**1,569**	**365**

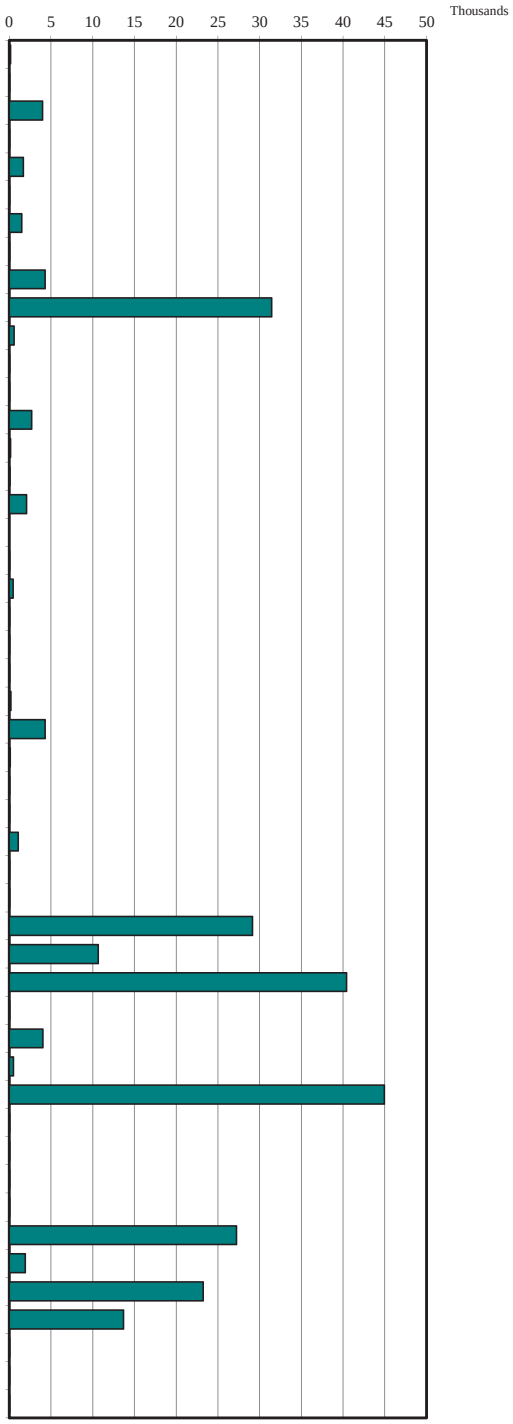
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

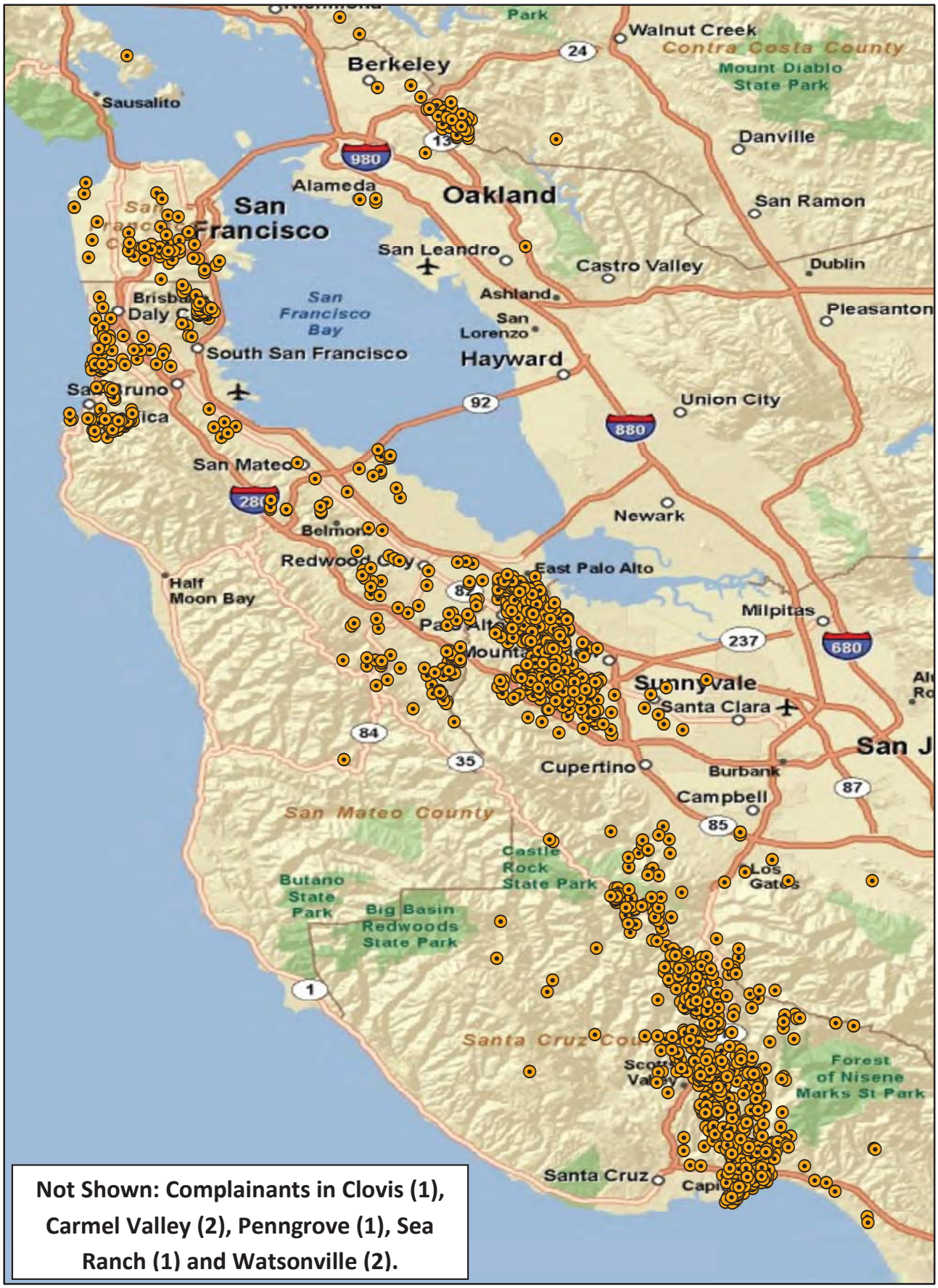
Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Callers
Roundtable Communities		
Atherton	147	1
Belmont	7	4
Brisbane	3,999	56
Burlingame	8	5
Daly City	1,687	6
Foster City	31	9
Menlo Park	1,479	33
Millbrae	1	1
Pacifica	4,299	78
Portola Valley	31,451	46
Redwood City	561	23
San Bruno	4	1
San Carlos	4	3
San Francisco	2,682	52
San Mateo	157	10
South San Francisco	59	12
Woodside	2,078	13
Other Communities		
Alameda	5	3
Aptos	478	9
Belvedere-Tiburon	1	1
Ben Lomond	24	1
Berkeley	3	2
Boulder Creek	178	5
Capitola	4,283	40
Carmel Valley	119	2
Clovis	1	1
El Cerrito	2	1
Felton	1,056	10
Kensington	1	1
La Selva Beach	28	2
Los Altos	29,153	224
Los Altos Hills	10,662	41
Los Gatos	40,436	206
Moraga	1	1
Mountain View	4,037	32
Oakland	494	58
Palo Alto	44,932	289
Penngrove	1	1
San Jose	1	1
San Leandro	2	1
Santa Clara	42	1
Santa Cruz	27,210	154
Saratoga	1,930	20
Scotts Valley	23,239	110
Soquel	13,684	129
Sunnyvale	44	6
The Sea Ranch	3	1
Watsonville	10	2
	250,714	**1,708**



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

Monthly Noise Complainant Summary Map January 2016

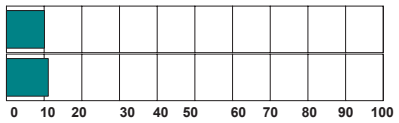


"Our software vendor's address validation relies on USPS-provided ZIP code look-up table and the USPS-specified 'default city' values"

Complainant Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **January 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
American Airlines	AAL	11	8.9	48%
UNITED	UAL	12	2.8	52%
Total		**23**		



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

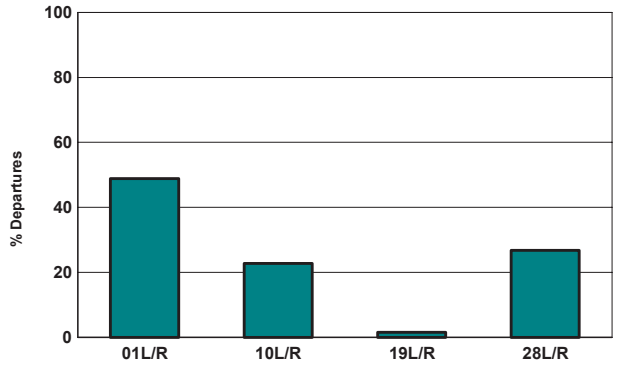
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: January 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

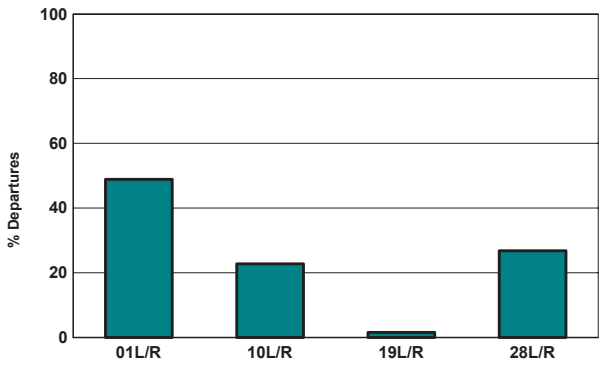
Monthly Jet Departures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
01L/R	155	-	-	-	-	-	-	-	-	-	-	-	155
10L/R	72	-	-	-	-	-	-	-	-	-	-	-	72
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	-	-	-	-	-	-	-	-	-	-	-	85
Total	**317**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**317**
01L/R	49%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49%
10L/R	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	23%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
28L/R	27%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	27%

Current Month (1 am to 6 am)



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



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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

Numbers rounded to nearest whole percentages

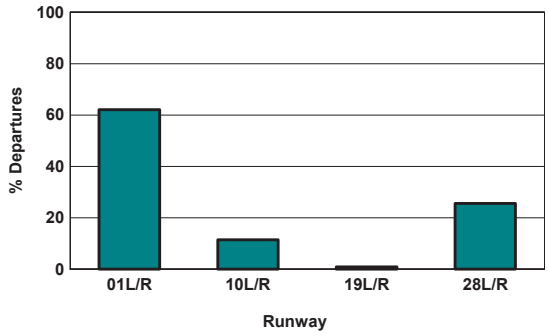
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: January 2016
Time of Day : All Hours

Runway Utilization (All Hours)

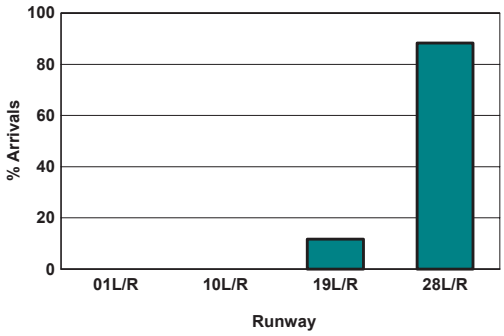
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	9,805	1,805	138	4,054	15,802
Arrivals	0	0	1,844	13,913	15,757
Percentage Utilization					
Departures	62.0%	11.4%	0.9%	25.7%	100%
Arrivals	0.0%	0.0%	11.7%	88.3%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the June 1, 2016
Airport Community Roundtable Meeting

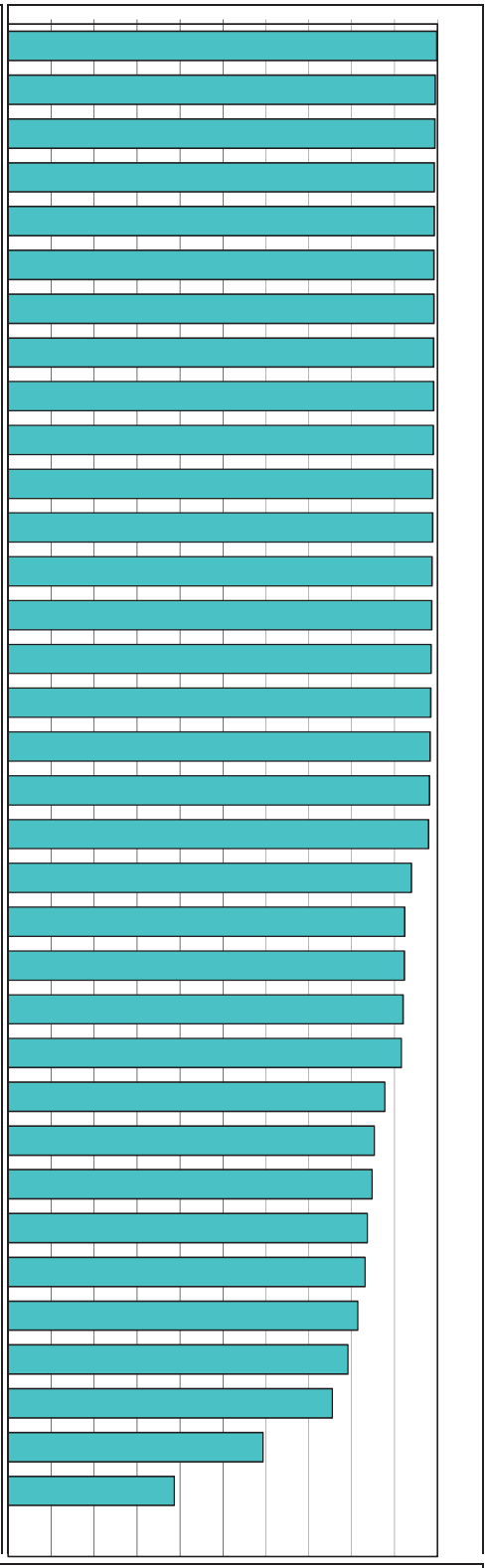
Aircraft Noise Abatement Office
February 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **February 2016**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
SkyWest Airlines	SKW	14	6,086	2	***9.99***
Delta	DAL	19	1,855	10	***9.95***
Southwest	SWA	27	2,316	12	***9.94***
Sun Country Airlines	SCX	1	70	14	***9.93***
Frontier Airlines	FFT	5	330	15	***9.93***
Virgin America	VRD	46	2,864	16	***9.92***
China Eastern	CES	1	60	17	***9.92***
Emirates	UAE	1	58	17	***9.92***
Alaska	ASA	17	955	18	***9.91***
JetBlue	JBU	18	965	19	***9.91***
Virgin Atlantic	VIR	2	92	22	***9.89***
Compass Airlines	CPZ	16	722	22	***9.89***
American Airlines	AAL	59	2,401	25	***9.88***
United	UAL	228	8,350	27	***9.87***
Air Canada	ACA	13	433	30	***9.85***
AeroMexico	AMX	5	157	32	***9.84***
British Airways	BAW	4	116	34	***9.83***
FedEx	FDX	3	81	37	***9.82***
Hawaiian Airlines	HAL	5	118	42	***9.79***
CopaAirlines	CMP	7	57	123	***9.40***
Philippines	PAL	9	58	155	***9.24***
Avianca	TAI	13	83	157	***9.23***
Atlas Air	GTI	14	86	163	***9.20***
Singapore Airlines	SIA	20	116	172	***9.15***
Air India	AIC	6	24	250	***8.77***
China Airlines	CAL	27	90	300	***8.53***
Japan Airlines	JAL	18	58	310	***8.48***
EVA Air	EVA	41	123	333	***8.37***
Etihad	ETD	20	58	345	***8.31***
Cathay Pacific	CPA	53	140	379	***8.14***
Korean Air	KAL	46	108	426	***7.91***
Nippon Cargo Airlines	NCA	20	40	500	***7.55***
Asiana Airlines	AAR	78	94	830	***5.93***
Kalitta Air	CKS	5	4	1,250	***3.87***
Qantas	QFA	102	50	2,040	***0.00***
TOTAL		**963**	**29,218**	**8,144**	

Noise Exceedance Quality Rating



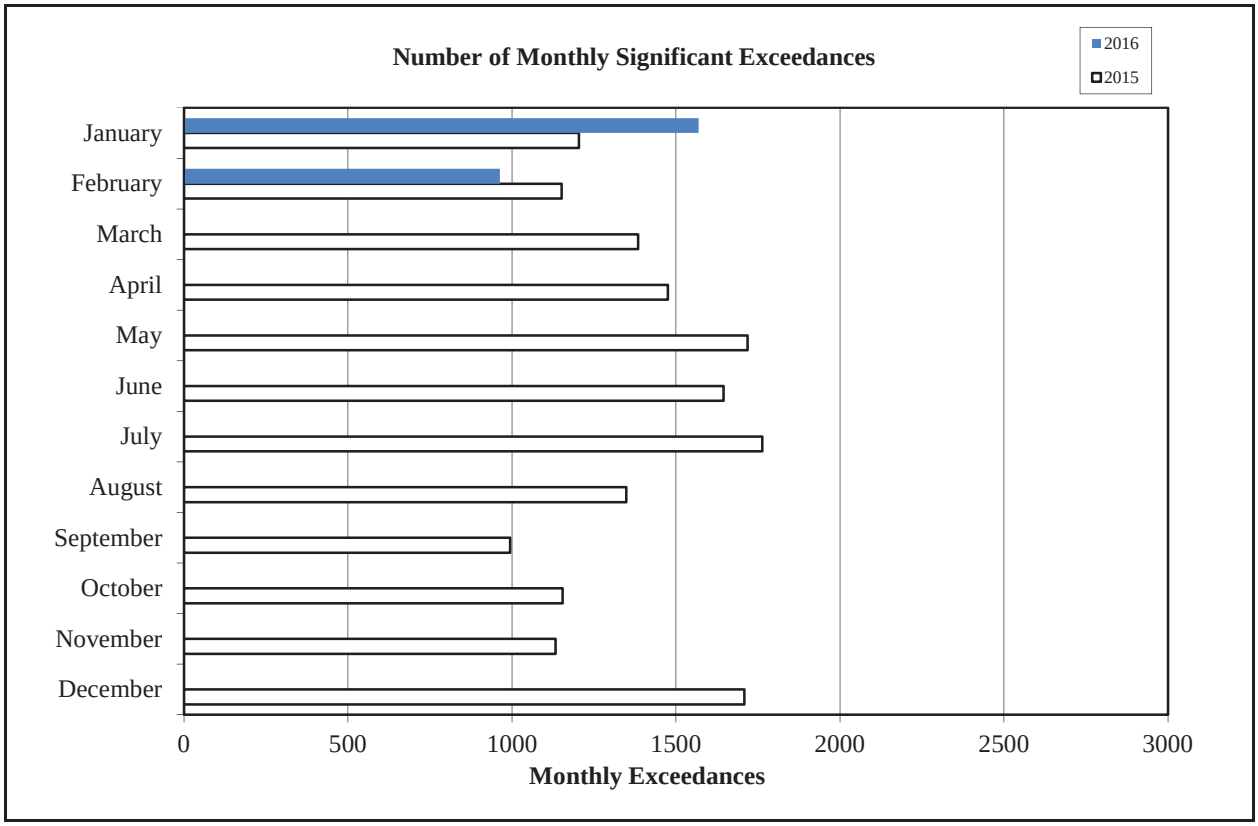
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **February 2016**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2012	2013	2014	2015	2016	Change from Last Year
January	1,378	1,428	1,184	1,204	1,569	**365**
February	1,581	1,176	1,141	1,151	963	**-188**
March	1,703	1,671	1,345	1,384		**0**
April	1,870	1,910*	1,362	1,475		**0**
May	1,912	1,859*	1,515	1,718		**0**
June	2,355	1,915	1,740	1,645		**0**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	2,532	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**2,532**	**177**

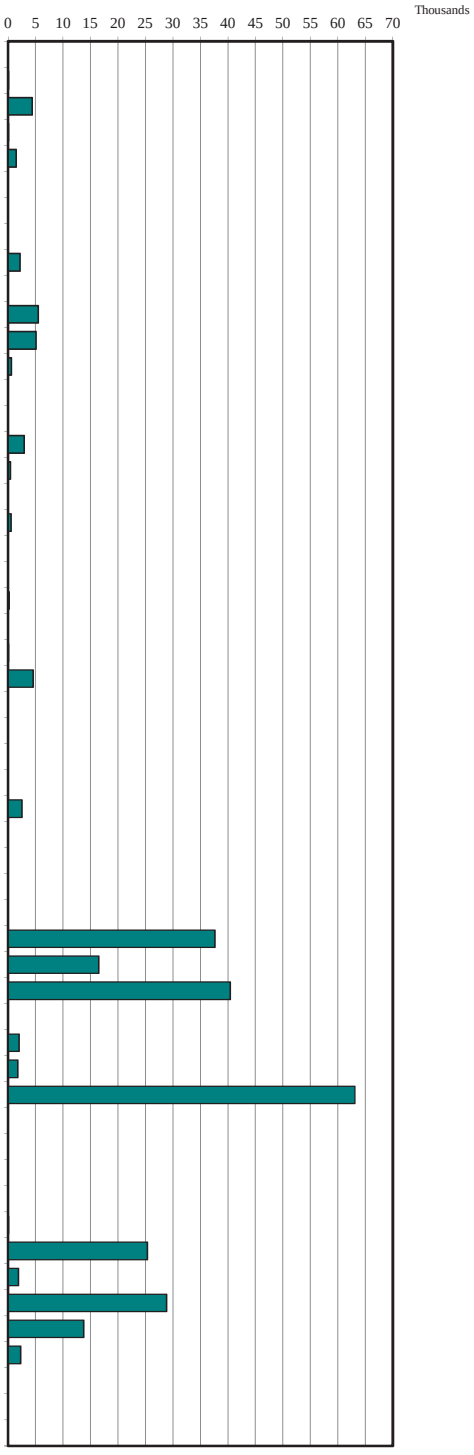
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Callers
Roundtable Communities		
Atherton	45	2
Belmont	108	3
Brisbane	4,375	66
Burlingame	66	6
Daly City	1,467	6
Foster City	28	6
Half Moon Bay	1	1
Hillsborough	1	1
Menlo Park	2,155	31
Millbrae	12	6
Pacifica	5,507	48
Portola Valley	5,087	60
Redwood City	628	12
San Bruno	3	3
San Carlos	9	5
San Francisco	2,968	41
San Mateo	454	11
South San Francisco	35	11
Woodside	579	13
Other Communities		
Alameda	4	2
Aptos	212	8
Ben Lomond	28	1
Boulder Creek	81	7
Capitola	4,563	46
Carmel Valley	32	1
Chico	1	1
Danville	2	1
Emerald Hills	14	1
Felton	2,537	8
Fremont	1	1
Hayward	1	1
La Honda	6	1
La Selva Beach	16	2
Los Altos	37,614	226
Los Altos Hills	16,487	40
Los Gatos	40,436	213
Morgan Hill	1	1
Mountain View	1,998	28
Oakland	1,768	17
Palo Alto	63,070	306
Pleasanton	24	1
Richmond	1	1
San Jose	1	1
San Leandro	2	1
Santa Clara	82	1
Santa Cruz	25,367	165
Saratoga	1,916	28
Scotts Valley	28,828	109
Soquel	13,776	136
Stanford	2,319	6
Sunnyvale	44	2
The Sea Ranch	1	1
Watsonville	42	1
	264,803	**1,697**



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

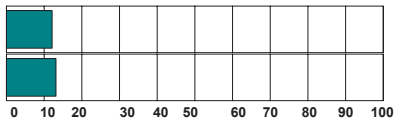
Monthly Noise Complainant Summary Map February 2016

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

Complainant Locations

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **February 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
UNITED	UAL	13	3.1	48%
American Airlines	AAL	14	11.7	52%
Total		**27**		



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

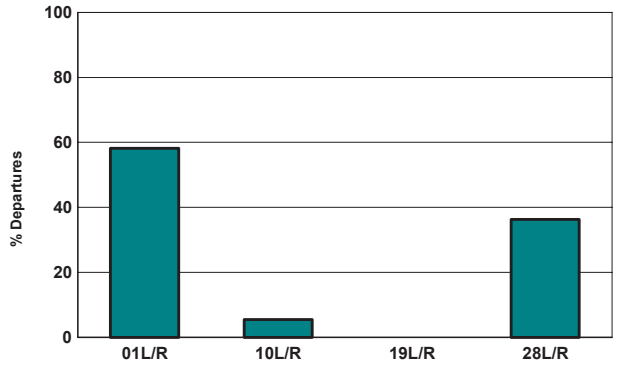
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: February 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

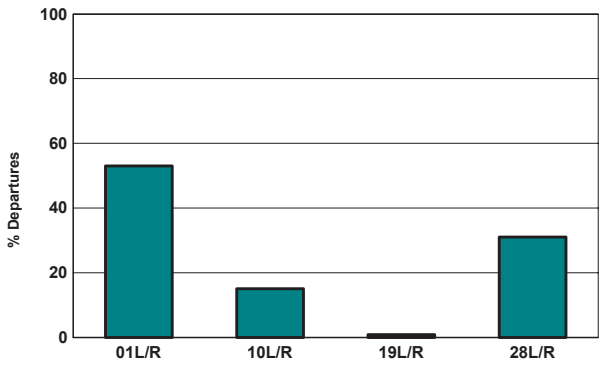
Monthly Jet Departures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
01L/R	155	149	-	-	-	-	-	-	-	-	-	-	304
10L/R	72	14	-	-	-	-	-	-	-	-	-	-	86
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	93	-	-	-	-	-	-	-	-	-	-	178
Total	**317**	**256**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**573**
01L/R	49%	58%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	53%
10L/R	23%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
28L/R	27%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%

Current Month (1 am to 6 am)



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



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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

Numbers rounded to nearest whole percentages

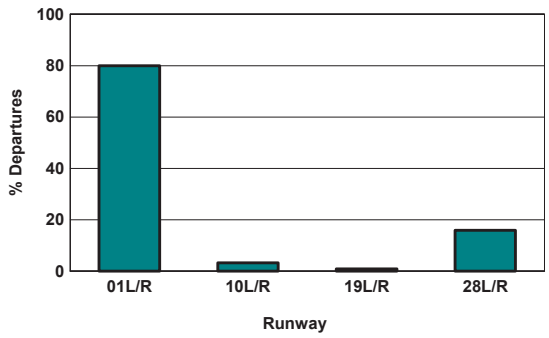
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: February 2016
Time of Day : All Hours

Runway Utilization (All Hours)

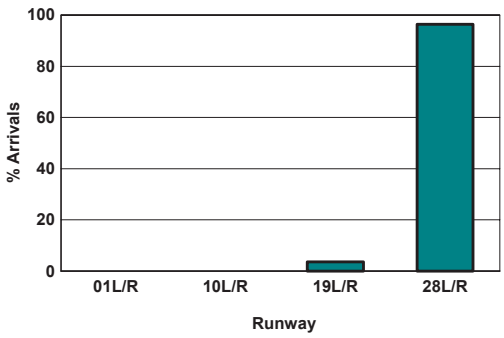
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	12,024	487	149	2,391	15,051
Arrivals	0	0	548	14,534	15,082
Percentage Utilization					
Departures	79.9%	3.2%	1.0%	15.9%	100%
Arrivals	0.0%	0.0%	3.6%	96.4%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the June 1, 2016
Airport Community Roundtable Meeting

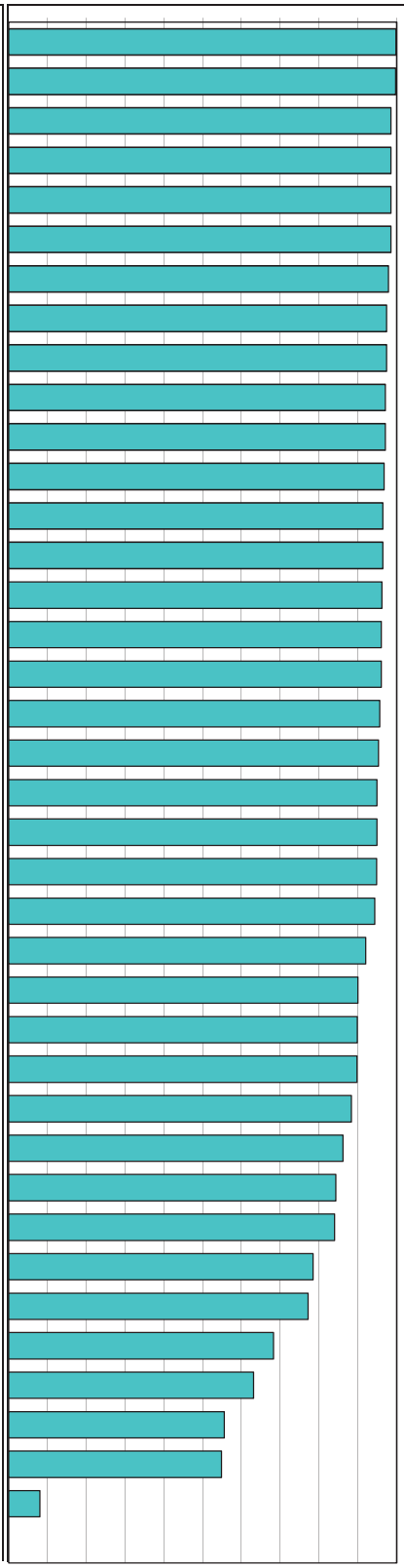
Aircraft Noise Abatement Office
March 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **March 2016**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
NETJETS	EJA	1	420	2	***9.98***
SkyWest Airlines	SKW	23	6,733	3	***9.97***
Air New Zealand	ANZ	1	62	16	***9.85***
Japan Airlines	JAL	1	62	16	***9.85***
Scandinavian Airlines	SAS	1	62	16	***9.85***
Lufthansa	DLH	2	123	16	***9.85***
Frontier Airlines	FFT	9	387	23	***9.79***
Delta	DAL	68	2,349	29	***9.74***
Virgin America	VRD	97	3,299	29	***9.73***
Swiss	SWR	2	61	33	***9.70***
Emirates	UAE	2	61	33	***9.70***
Virgin Atlantic	VIR	4	112	36	***9.68***
United	UAL	382	9,689	39	***9.64***
Compass Airlines	CPZ	26	651	40	***9.64***
Alaska	ASA	45	1,062	42	***9.62***
Southwest	SWA	112	2,551	44	***9.60***
American Airlines	AAL	115	2,601	44	***9.60***
Copa Airlines	CMP	3	62	48	***9.56***
jetBlue	JBU	52	999	52	***9.53***
Air Canada	ACA	26	463	56	***9.49***
Singapore Airlines	SIA	7	124	56	***9.49***
China Airlines	CAL	6	105	57	***9.48***
Sun Country Airlines	SCX	4	64	63	***9.44***
British Airways	BAW	11	124	89	***9.20***
EVA Air	EVA	15	135	111	***9.00***
Hawaiian Airlines	HAL	14	124	113	***8.98***
Cathay Pacific	CPA	17	150	113	***8.98***
Philippines	PAL	8	62	129	***8.83***
Air India	AIC	4	26	154	***8.61***
FedEx	FDX	16	92	174	***8.43***
Etihad Airways	ETD	11	62	177	***8.40***
Atlas Air	GTI	22	92	239	***7.84***
Avianca	TAI	22	87	253	***7.72***
Nippon Cargo Airlines	NCA	19	54	352	***6.82***
Asiana Airlines	AAR	38	93	409	***6.31***
Korean Air	KAL	61	124	492	***5.56***
AeroMexico	AMX	22	44	500	***5.48***
Qantas	QFA	55	54	1,019	***0.80***
Kalitta Air	CKS	31	28	1,107	***0.00***
TOTAL		**1,355**	**33,453**	**6,226**	

Noise Exceedance Quality Rating



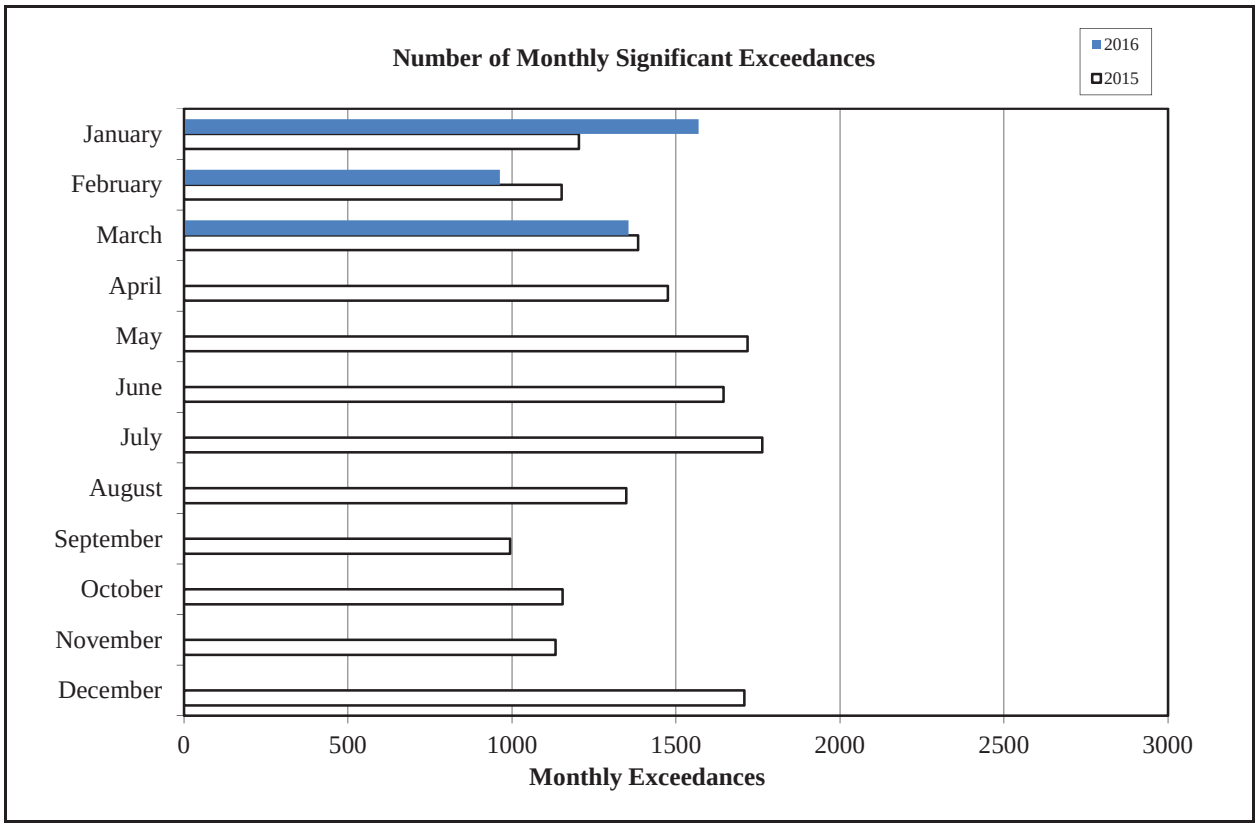
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **March 2016**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2012	2013	2014	2015	2016	Change from Last Year
January	1,378	1,428	1,184	1,204	1,569	**365**
February	1,581	1,176	1,141	1,151	963	**-188**
March	1,703	1,671	1,345	1,384	1,355	**-29**
April	1,870	1,910*	1,362	1,475		**0**
May	1,912	1,859*	1,515	1,718		**0**
June	2,355	1,915	1,740	1,645		**0**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	3,887	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**3,887**	**148**

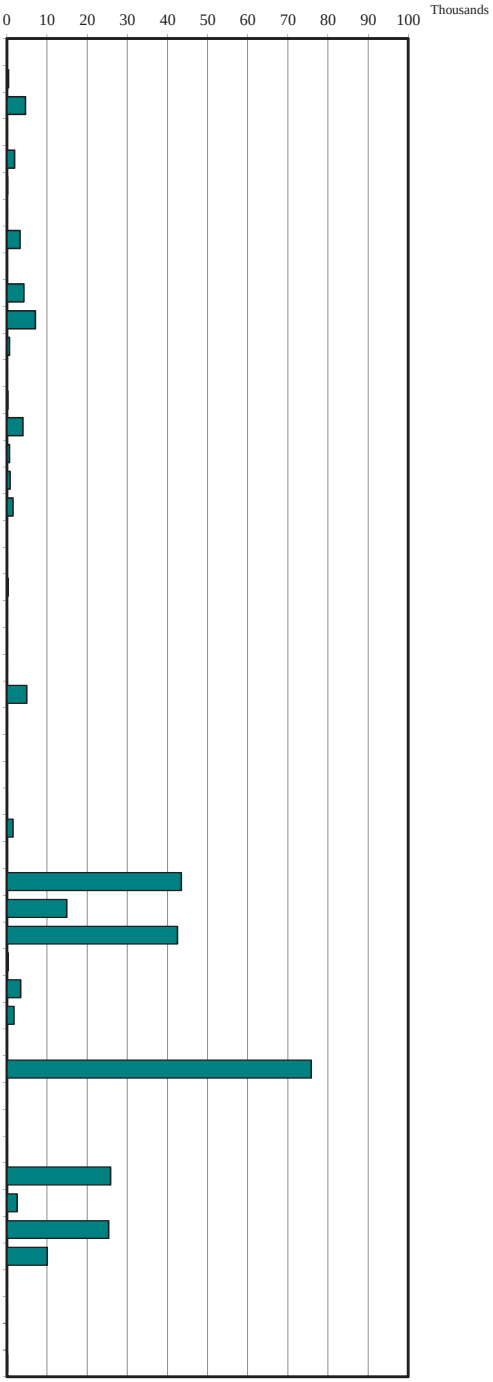
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

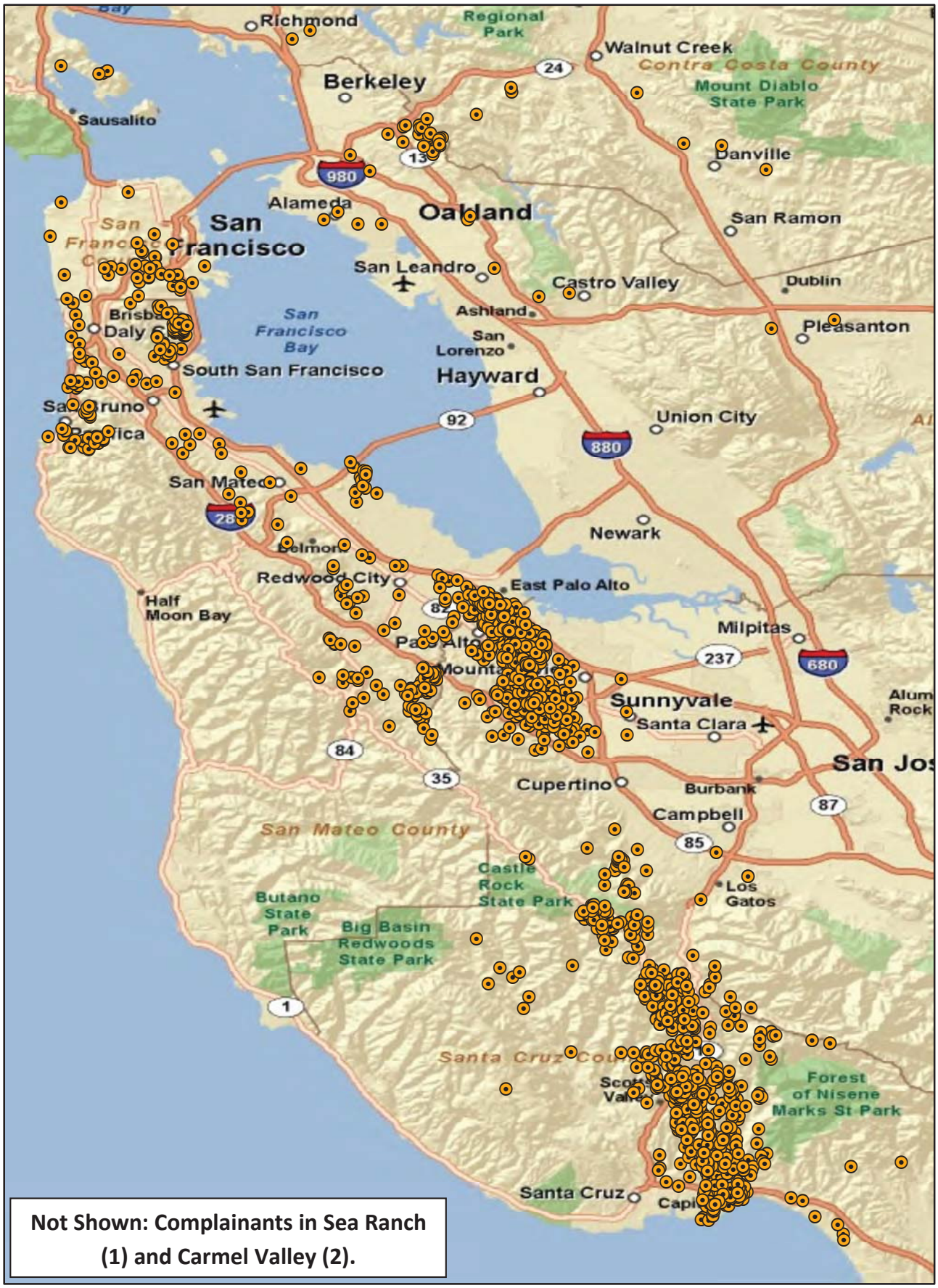
Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Complainants
Roundtable Communities		
Atherton	34	5
Belmont	426	2
Brisbane	4,651	59
Burlingame	71	5
Daly City	1,941	7
Foster City	147	15
Hillsborough	1	1
Menlo Park	3,229	36
Millbrae	5	3
Pacifica	4,234	45
Portola Valley	7,134	63
Redwood City	610	19
San Bruno	6	3
San Carlos	252	5
San Francisco	3,993	40
San Mateo	610	7
South San Francisco	771	17
Woodside	1,526	14
Other Communities		
Alameda	10	4
Aptos	284	8
Belvedere-Tiburon	7	5
Ben Lomond	11	1
Boulder Creek	114	8
Capitola	4,940	39
Carmel Valley	18	2
Castro Valley	4	1
Danville	3	3
El Cerrito	1	1
Felton	1,482	9
La Selva Beach	108	2
Los Altos	43,428	264
Los Altos Hills	14,916	47
Los Gatos	42,507	218
Moraga	321	3
Mountain View	3,397	34
Oakland	1,786	30
Orinda	1	1
Palo Alto	75,857	345
Pleasanton	18	2
Richmond	1	1
San Leandro	53	2
Santa Cruz	25,837	168
Saratoga	2,570	31
Scotts Valley	25,383	118
Soquel	10,048	126
Sunnyvale	24	3
The Sea Ranch	3	1
Walnut Creek	1	1
Watsonville	132	2
	282,906	**1,826**



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

Monthly Noise Complainant Summary Map March 2016

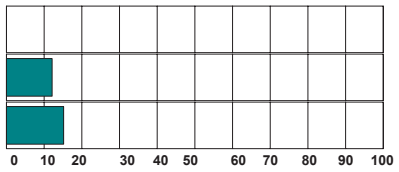


"Our software vendor's address validation relies on USPS-provided ZIP code look up table and USPS-specified 'default city' values."

Complainant Locations

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **March 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
DELTA	DAL	1	0.8	3%
American Airlines	AAL	13	10.0	43%
UNITED	UAL	16	3.3	53%
Total		**30**		



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

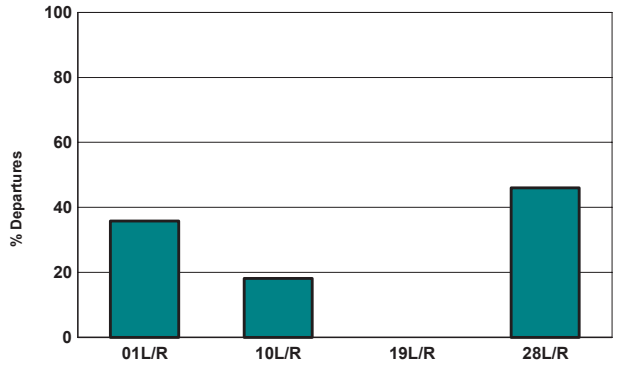
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: March 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

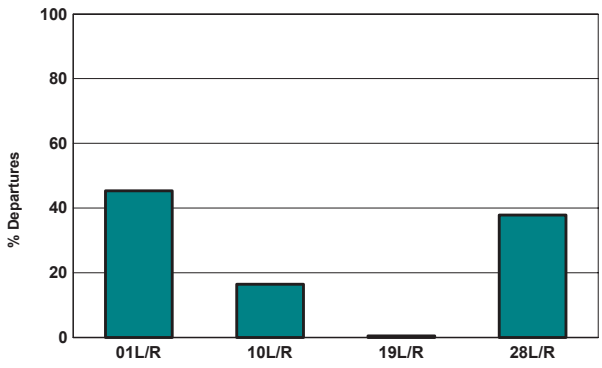
Monthly Jet Departures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
01L/R	155	149	168	-	-	-	-	-	-	-	-	-	472
10L/R	72	14	85	-	-	-	-	-	-	-	-	-	171
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	93	216	-	-	-	-	-	-	-	-	-	394
Total	**317**	**256**	**469**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,042**
01L/R	49%	58%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%
10L/R	23%	5%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	27%	36%	46%	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%

Current Month (1 am to 6 am)



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



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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

Numbers rounded to nearest whole percentages

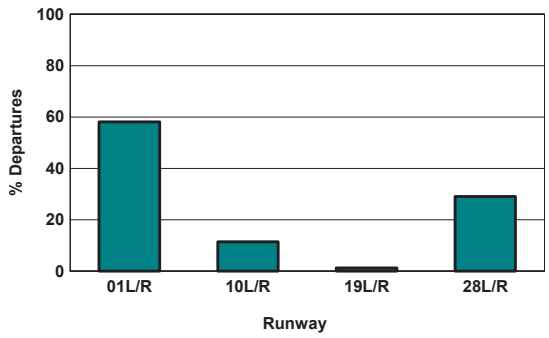
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: March 2016
Time of Day : All Hours

Runway Utilization (All Hours)

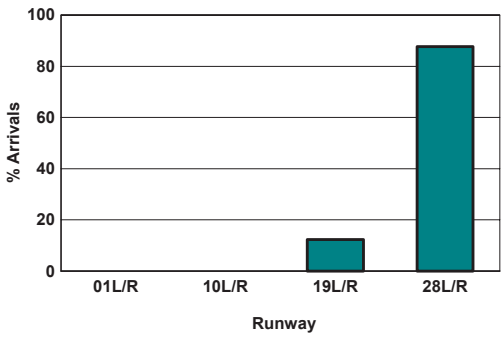
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	9,846	1,949	222	4,915	16,932
Arrivals	0	0	2,074	14,813	16,887
Percentage Utilization					
Departures	58.2%	11.5%	1.3%	29.0%	100%
Arrivals	0.0%	0.0%	12.3%	87.7%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the June 27, 2016
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
April 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **April 2016**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***
NETJETS	EJA	1	347	3	***9.99***
SkyWest	SKW	26	6,380	4	***9.98***
sun country airlines	SCX	1	89	11	***9.96***
AIRFRANCE	AFR	1	59	17	***9.94***
Lufthansa	DLH	2	118	17	***9.94***
TURKISH AIRLINES	THY	1	59	17	***9.94***
Compass	CPZ	16	888	18	***9.93***
FRONTIER AIRLINES	FFT	8	415	19	***9.93***
Virgin america	VRD	68	3,467	20	***9.93***
DELTA	DAL	48	2,191	22	***9.92***
Alaska	ASA	36	1,085	33	***9.88***
AIR CANADA	ACA	16	433	37	***9.86***
American Airlines	AAL	97	2,574	38	***9.86***
Southwest	SWA	101	2,576	39	***9.85***
UNITED	UAL	390	9,790	40	***9.85***
jetBlue	JBU	42	972	43	***9.84***
SWISS	SWR	3	59	51	***9.81***
AEROMEXICO.	AMX	8	157	51	***9.81***
EASTERN	EAL	1	10	100	***9.63***
CopaAirlines	CMP	6	59	102	***9.62***
HAWAIIAN AIRLINES	HAL	16	120	133	***9.50***
Avianca	TAI	12	86	140	***9.48***
ETIHAD	ETD	10	60	167	***9.38***
AIR INDIA	AIC	5	26	192	***9.28***
FedEx.	FDX	20	90	222	***9.17***
ATLAS AIR	GTI	21	84	250	***9.07***
SINGAPORE AIRLINES	SIA	30	118	254	***9.05***
JAPAN AIRLINES	JAL	19	60	317	***8.82***
NCA Nippon Cargo Airlines	NCA	17	52	327	***8.78***
CHINA AIRLINES	CAL	40	112	357	***8.67***
CATHAY PACIFIC	CPA	52	137	380	***8.58***
EVA AIR	EVA	49	125	392	***8.54***
AIR NEW ZEALAND	ANZ	30	60	500	***8.13***
Philippines	PAL	38	60	633	***7.64***
KOREAN AIR	KAL	89	121	736	***7.25***
ASIANA AIRLINES	AAR	78	88	886	***6.69***
QANTAS	QFA	123	50	2,460	***0.82***
KALITTA AIR	CKS	75	28	2,679	***0.00***
TOTAL		**1,596**	**33,205**	**11,706**	

Noise Exceedance Quality Rating

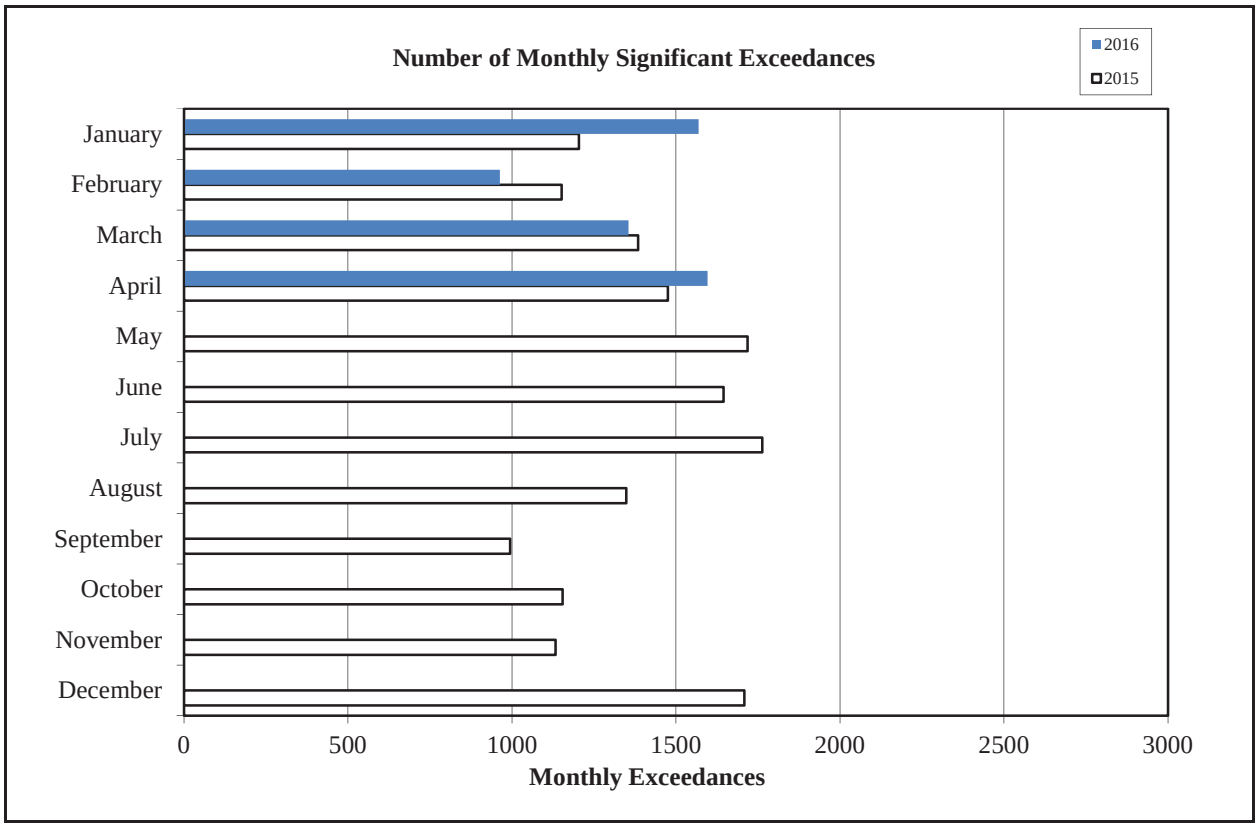
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **April 2016**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2012	2013	2014	2015	2016	Change from Last Year
January	1,378	1,428	1,184	1,204	1,569	**365**
February	1,581	1,176	1,141	1,151	963	**-188**
March	1,703	1,671	1,345	1,384	1,355	**-29**
April	1,870	1,910*	1,362	1,475	1,596	**121**
May	1,912	1,859*	1,515	1,718		**0**
June	2,355	1,915	1,740	1,645		**0**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	5,483	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**5,483**	**269**

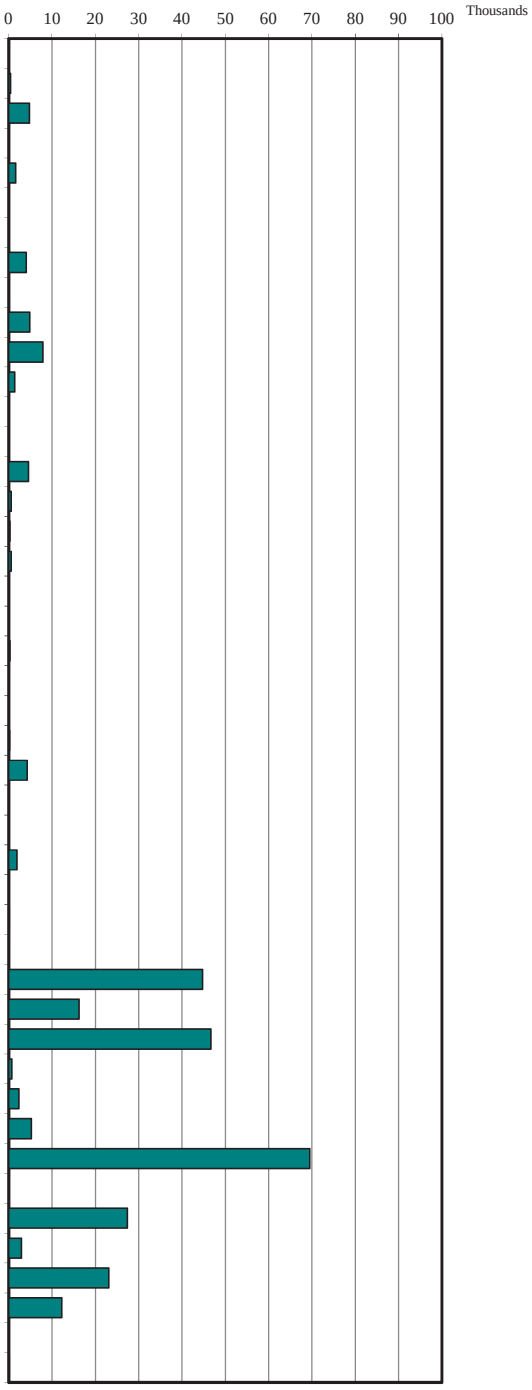
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Complainants
Roundtable Communities		
Atherton	23	4
Belmont	429	3
Brisbane	4,806	65
Burlingame	19	3
Daly City	1,614	5
Foster City	62	13
Half Moon Bay	1	1
Menlo Park	4,061	39
Millbrae	5	1
Pacifica	4,912	40
Portola Valley	7,890	64
Redwood City	1,424	20
San Bruno	7	5
San Carlos	111	5
San Francisco	4,603	53
San Mateo	587	9
South San Francisco	285	17
Woodside	617	12
Other Communities		
Alameda	1	1
Aptos	325	9
Ben Lomond	12	1
Berkeley	16	2
Boulder Creek	194	7
Capitola	4,252	40
Carmel Valley	34	2
Castro Valley	2	1
Felton	1,897	11
Fremont	4	1
La Selva Beach	185	2
Lafayette	1	1
Los Altos	44,798	324
Los Altos Hills	16,276	59
Los Gatos	46,723	211
Moraga	740	2
Mountain View	2,374	33
Oakland	5,219	28
Palo Alto	69,498	365
San Leandro	8	1
Santa Cruz	27,436	177
Saratoga	2,979	16
Scotts Valley	23,111	126
Soquel	12,253	131
Sunnyvale	26	2
Watsonville	126	1
	289,946	**1,913**



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

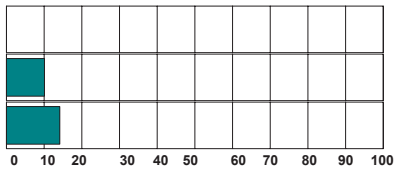
Monthly Noise Complainant Summary Map April 2016

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

Complainant Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **April 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
DELTA	DAL	1	0.9	4%
UNITED	UAL	11	2.2	41%
American Airlines	AAL	15	11.7	56%
Total		**27**		



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

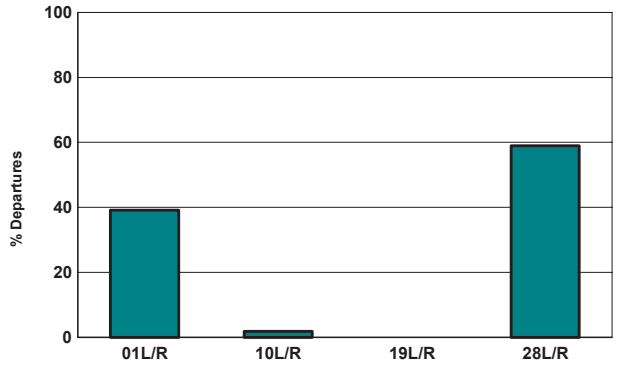
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: April 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

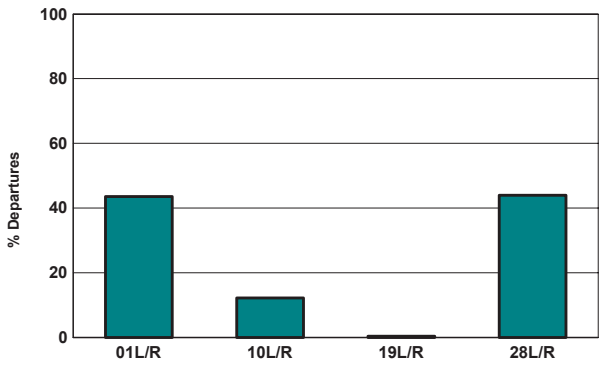
Monthly Jet Departures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
01L/R	155	149	168	166	-	-	-	-	-	-	-	-	638
10L/R	72	14	85	8	-	-	-	-	-	-	-	-	179
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	93	216	250	-	-	-	-	-	-	-	-	644
Total	**317**	**256**	**469**	**424**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,466**
01L/R	49%	58%	36%	39%	0%	0%	0%	0%	0%	0%	0%	0%	44%
10L/R	23%	5%	18%	2%	0%	0%	0%	0%	0%	0%	0%	0%	12%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	27%	36%	46%	59%	0%	0%	0%	0%	0%	0%	0%	0%	44%

Current Month (1 am to 6 am)



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



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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

Numbers rounded to nearest whole percentages

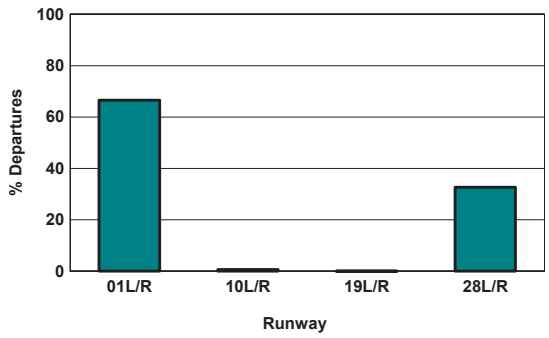
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: April 2016
Time of Day : All Hours

Runway Utilization (All Hours)

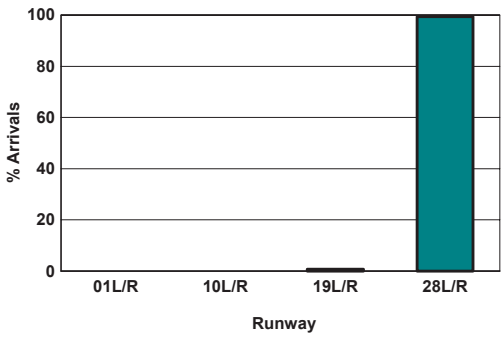
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	11,234	125	7	5,514	16,880
Arrivals	0	0	114	16,753	16,867
Percentage Utilization					
Departures	66.6%	0.7%	0.0%	32.7%	100%
Arrivals	0.0%	0.0%	0.7%	99.3%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the August 3, 2016
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
May 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **May 2016**

Airline		Noise Exceedances: Total Noise Exceedances	Total Operations per Month	Exceedances per 1,000 Operations	Score
SkyWest	SKW	35	6,981	5	9.98
Lufthansa	DLH	1	124	8	9.97
virgin atlantic	VIR	1	109	9	9.97
AIRFRANCE	AFR	1	87	11	9.96
中國東方航空 CHINA EASTERN	CES	1	64	16	9.94
AIR CHINA	CCA	1	61	16	9.94
Virgin america	VRD	85	3,605	24	9.91
KLM Royal Dutch Airlines	KLM	2	78	26	9.90
Compass Airlines	CPZ	19	725	26	9.90
DELTA	DAL	66	2,342	28	9.89
FRONTIER AIRLINES	FFT	12	417	29	9.89
AIR CANADA	ACA	21	648	32	9.88
AEROMEXICO.	AMX	6	157	38	9.86
Southwest	SWA	105	2,705	39	9.85
American Airlines	AAL	115	2,840	40	9.85
Alaska	ASA	48	1,112	43	9.84
UNITED	UAL	463	10,550	44	9.83
jetBlue	JBU	45	963	47	9.82
WESTJET	WJA	14	122	115	9.57
Scandinavian Airlines	SAS	7	60	117	9.56
CopaAirlines	CMP	8	62	129	9.51
ETIHAD	ETD	8	61	131	9.51
HAWAIIAN AIRLINES	HAL	20	124	161	9.39
Avianca	TAI	14	85	165	9.38
FedEx	FDX	18	84	214	9.19
AIR INDIA	AIC	6	26	231	9.13
EASTERN	EAL	1	4	250	9.06
SINGAPORE AIRLINES	SIA	31	123	252	9.05
CHINA AIRLINES	CAL	34	113	301	8.87
NCA Nippon Cargo Airlines	NCA	17	50	340	8.72
ATLAS AIR	GTI	32	90	356	8.66
JAPAN AIRLINES	JAL	26	61	426	8.39
CATHAY PACIFIC	CPA	68	147	463	8.26
ASIANA AIRLINES	AAR	47	98	480	8.19
EVA AIR	EVA	65	132	492	8.14
AIR NEW ZEALAND	ANZ	43	61	705	7.34
KOREAN AIR	KAL	94	124	758	7.14
Philippines	PAL	66	71	930	6.50
QANTAS	QFA	131	52	2,519	0.51
SKYWEST AIRLINES	CKS	69	26	2,654	0.00
TOTAL		**1,846**	**35,344**	**12,669**	

Noise Exceedance Quality Rating

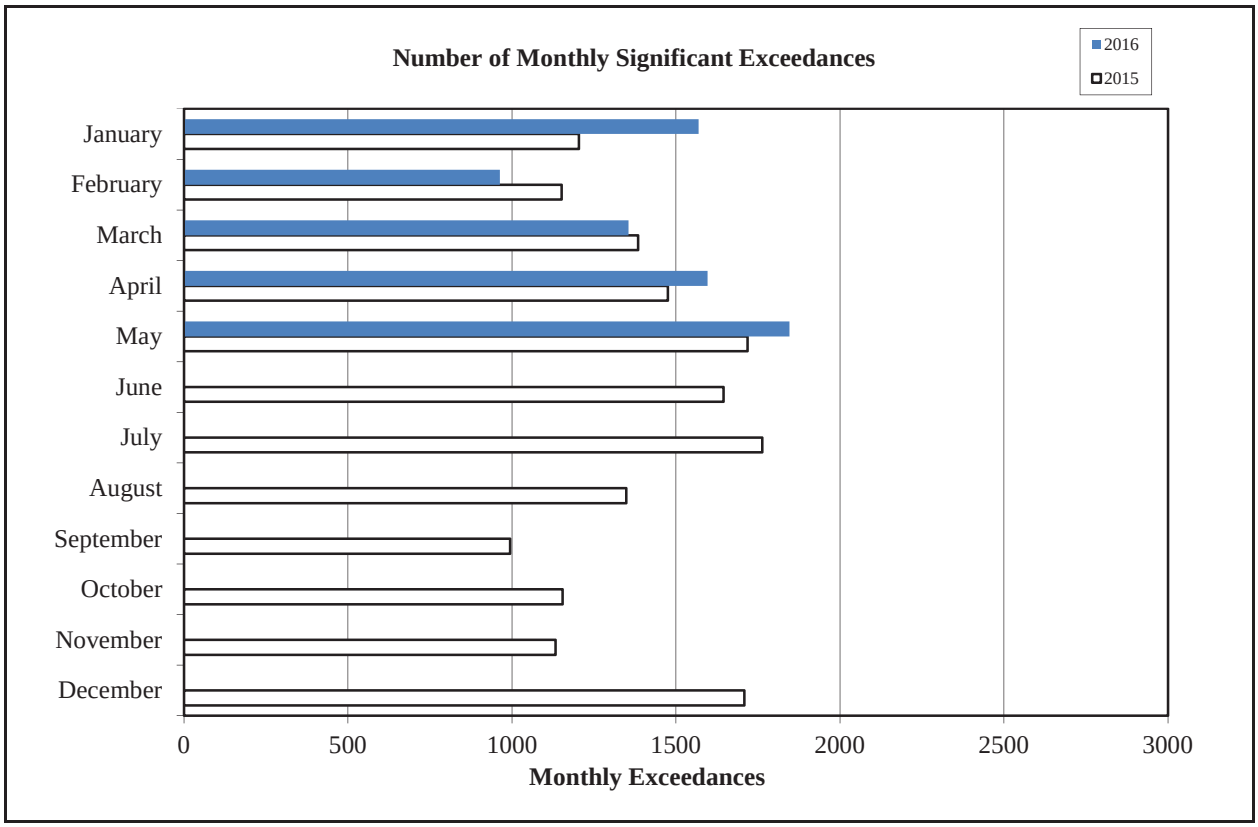
Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **May 2016**

San Francisco International Airport

Month	Number of Monthly Significant Exceedances 2012	2013	2014	2015	2016	Change from Last Year
January	1,378	1,428	1,184	1,204	1,569	**365**
February	1,581	1,176	1,141	1,151	963	**-188**
March	1,703	1,671	1,345	1,384	1,355	**-29**
April	1,870	1,910*	1,362	1,475	1,596	**121**
May	1,912	1,859*	1,515	1,718	1,846	**128**
June	2,355	1,915	1,740	1,645		**0**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	7,329	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**7,329**	**397**

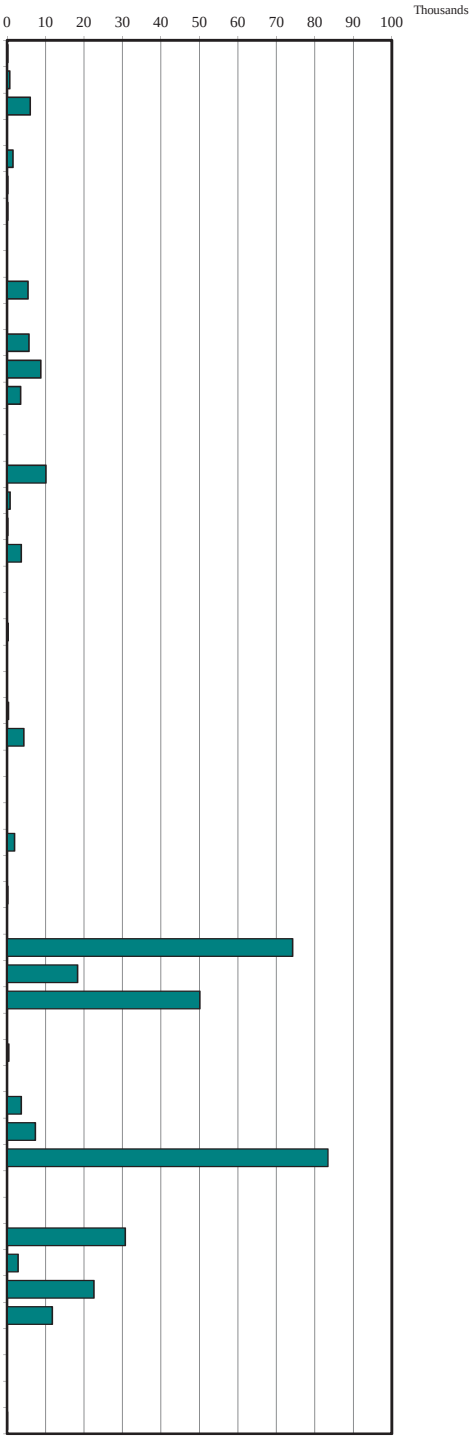
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Complainants
Roundtable Communities		
Atherton	236	7
Belmont	724	2
Brisbane	6,020	83
Burlingame	10	6
Daly City	1,563	6
East Palo Alto	196	1
Foster City	168	11
Half Moon Bay	2	2
Hillsborough	2	2
Menlo Park	5,473	49
Millbrae	10	9
Pacifica	5,717	51
Portola Valley	8,745	67
Redwood City	3,567	30
San Bruno	4	4
San Carlos	47	3
San Francisco	10,126	84
San Mateo	812	13
South San Francisco	169	16
Woodside	3,663	37
Other Communities		
Alameda	78	4
Aptos	313	12
Ben Lomond	35	2
Berkeley	3	2
Boulder Creek	343	9
Capitola	4,388	39
Carmel Valley	36	1
Concord	1	1
Cupertino	1	1
Felton	1,968	11
Fremont	8	1
La Selva Beach	174	2
Lafayette	81	2
Los Altos	74,236	446
Los Altos Hills	18,306	80
Los Gatos	50,110	234
Montara	1	1
Moraga	431	1
Morgan Hill	1	1
Mountain View	3,678	44
Oakland	7,323	36
Palo Alto	83,334	454
San Jose	8	1
San Leandro	32	2
Santa Cruz	30,769	180
Saratoga	2,883	20
Scotts Valley	22,538	123
Soquel	11,739	137
Sunnyvale	9	2
The Sea Ranch	1	1
Walnut Creek	1	1
Watsonville	135	2
	360,218	**2,336**



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

Monthly Noise Complainant Summary Map May 2016

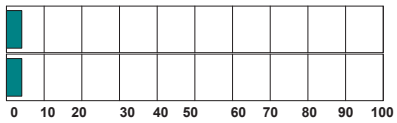
Complainants Not Shown:
Carmel Valley (1)
The Sea Ranch (1)

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

Complainant Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **May 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
American Airlines	AAL	5	3.5	50%
UNITED	UAL	5	0.9	50%
Total		**10**		



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

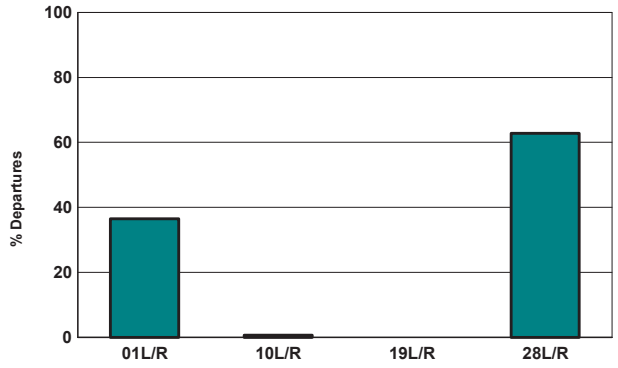
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: May 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

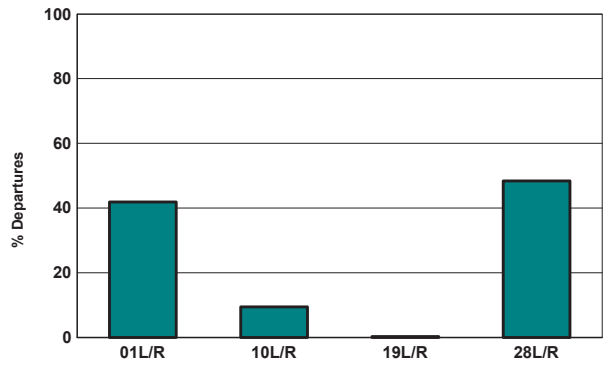
Monthly Jet Departures

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*YTD*
01L/R	155	149	168	166	167	-	-	-	-	-	-	-	805
10L/R	72	14	85	8	3	-	-	-	-	-	-	-	182
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	93	216	250	287	-	-	-	-	-	-	-	931
Total	**317**	**256**	**469**	**424**	**457**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,923**
01L/R	49%	58%	36%	39%	37%	0%	0%	0%	0%	0%	0%	0%	42%
10L/R	23%	5%	18%	2%	1%	0%	0%	0%	0%	0%	0%	0%	9%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	27%	36%	46%	59%	63%	0%	0%	0%	0%	0%	0%	0%	48%

Current Month (1 am to 6 am)



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



Current Month (1 am to 6 am)

Numbers rounded to nearest whole percentages

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

Numbers rounded to nearest whole percentages

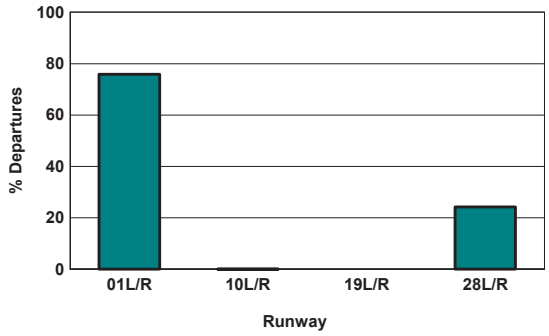
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: May 2016
Time of Day : All Hours

Runway Utilization (All Hours)

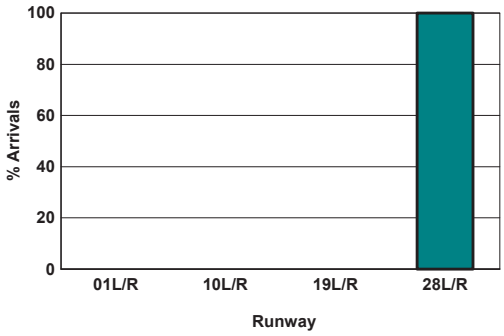
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	13,785	3	0	4,400	18,188
Arrivals	0	0	0	18,158	18,158
Percentage Utilization					
Departures	75.8%	0.0%	0.0%	24.2%	100%
Arrivals	0.0%	0.0%	0.0%	100.0%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

Airport Director's Report

Presented at the August 3, 2016
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
June 2016

SFO San Francisco International Airport

Monthly Noise Exceedance Report
San Francisco International Airport -- Director's Report
Period: **June 2016**

Airline		Noise Exceedances: *Total Noise Exceedances*	*Total Operations per Month*	*Exceedances per 1,000 Operations*	***Score***	**Noise Exceedance Quality Rating**
SkyWest	SKW	27	6,507	4	***9.98***	
Frontier	FFT	4	395	10	***9.96***	
Air Canada	ACA	9	731	12	***9.95***	
Sun Country	SCX	2	158	13	***9.95***	
Virgin America	VRD	47	3,622	13	***9.95***	
Etihad	ETD	1	60	17	***9.94***	
Swiss	SWR	1	60	17	***9.94***	
British Airways	BAW	2	118	17	***9.94***	
Delta	DAL	48	2,556	19	***9.93***	
Compass	CPZ	19	829	23	***9.92***	
KLM	KLM	2	78	26	***9.91***	
JetBlue	JBU	25	940	27	***9.90***	
Alaska	ASA	31	1,066	29	***9.89***	
Southwest	SWA	95	2,653	36	***9.87***	
United	UAL	403	11,083	36	***9.87***	
American Airlines	AAL	114	2,889	39	***9.85***	
Air France	AFR	5	110	45	***9.83***	
Eastern	EAL	1	8	125	***9.54***	
Copa Airlines	CMP	8	60	133	***9.51***	
WestJet	WJA	17	120	142	***9.48***	
Aeromexico	AMX	29	187	155	***9.43***	
Avianca	TAI	15	85	176	***9.35***	
FedEx	FDX	17	92	185	***9.32***	
Hawaiian	HAL	24	120	200	***9.26***	
Atlas Air	GTI	21	88	239	***9.12***	
Nippon Cargo Airlines	NCA	13	52	250	***9.07***	
Singapore Airlines	SIA	30	120	250	***9.07***	
China Airlines	CAL	29	101	287	***8.94***	
Air India	AIC	8	26	308	***8.86***	
Japan Airlines	JAL	20	59	339	***8.74***	
EVA Air	EVA	49	128	383	***8.58***	
Cathay Pacific	CPA	58	145	400	***8.52***	
Asiana Airlines	AAR	53	104	510	***8.11***	
Fiji Airways	FJI	5	9	556	***7.94***	
Air New Zealand	ANZ	32	54	593	***7.81***	
Korean Air	KAL	82	120	683	***7.47***	
Philippines	PAL	74	85	871	***6.78***	
Qantas	QFA	107	51	2,098	***2.23***	
Kalitta Air	CKS	27	10	2,700	***0.00***	
TOTAL		**1,554**	**35,679**	**11,964**		

Source: SFO Noise Abatement Office

Historical Significant Exceedances Report
San Francisco International Airport -- Director's Report
Period: **June 2016**

San Francisco International Airport

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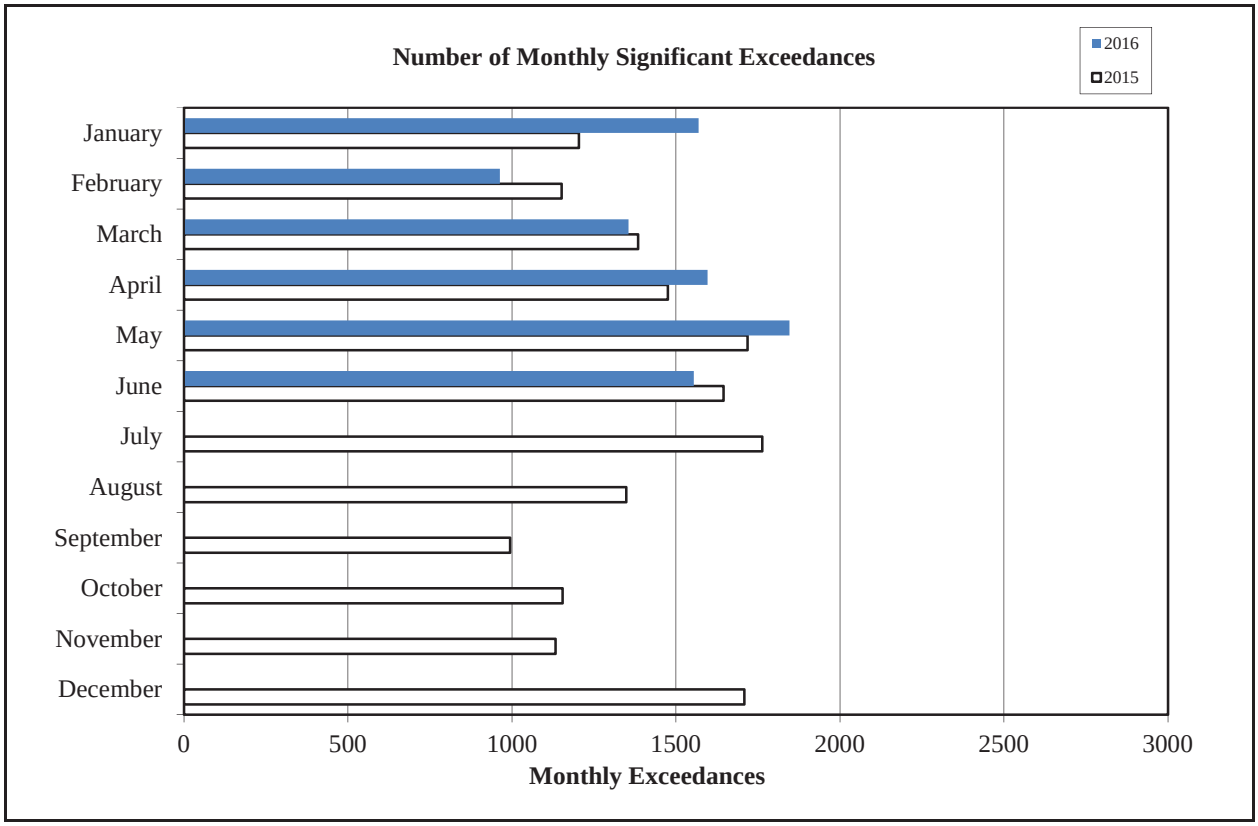
February	1,581	1,176	1,141	1,151	963	**-188**
March	1,703	1,671	1,345	1,384	1,355	**-29**
April	1,870	1,910*	1,362	1,475	1,596	**121**
May	1,912	1,859*	1,515	1,718	1,846	**128**
June	2,355	1,915	1,740	1,645	1,554	**-91**
July	2,621	1,647	1,619	1,763***		**0**
August	1,823	1,638**	1,460	1,348		**0**
September	1,464	1,352	1,111	994		**0**
October	1,689	1,277	1,055	1,154		**0**
November	1,421	1,262	1,245	1,133		**0**
December	1,439	1,160	1,670	1,708		**0**
Annual Total	21,256	18,295	16,447	16,677	8,883	
Year to Date Trend	**21,256**	**18,295**	**16,447**	**16,677**	**8,883**	**306**

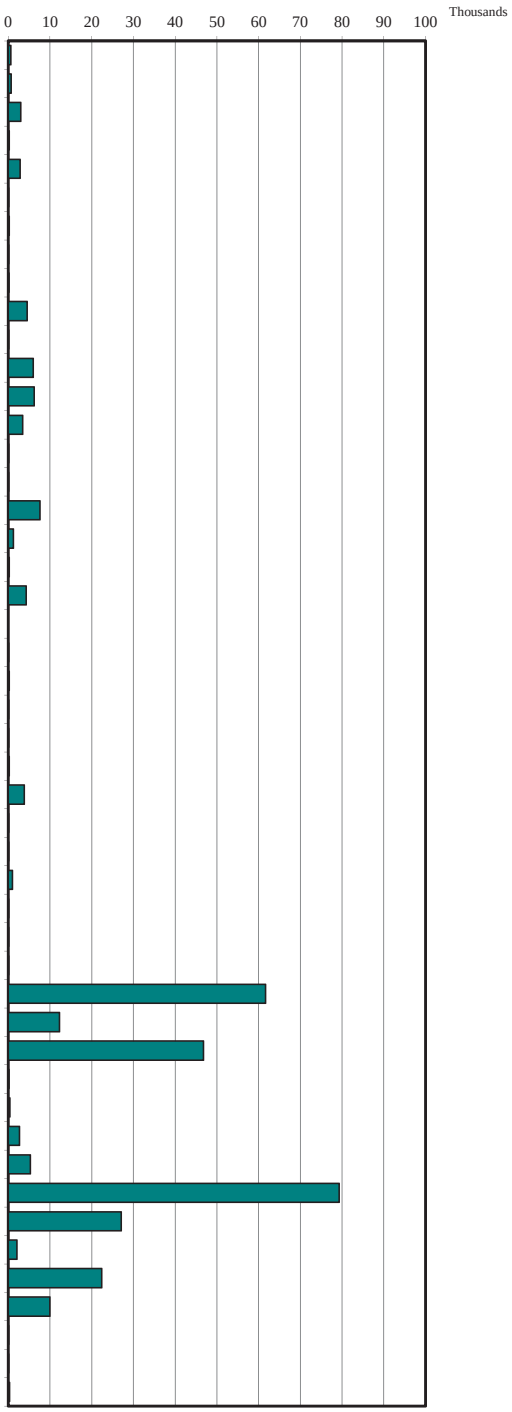
* Revised with correct amount of exceedance - 8/5/13
** No data available from Site 7, August 1-26
***No data available from Site 2 starting July 17



Monthly Calls by Community

Source: Airport Noise Monitoring System

Community	Total Complaints	Total Number of Complainants
Roundtable Communities		
Atherton	636	8
Belmont	685	8
Brisbane	3,008	55
Burlingame	197	32
Daly City	2,805	9
East Palo Alto	45	1
Foster City	215	18
Half Moon Bay	5	4
Hillsborough	177	14
Menlo Park	4,490	40
Millbrae	22	6
Pacifica	5,998	56
Portola Valley	6,187	58
Redwood City	3,415	29
San Bruno	1	1
San Carlos	27	4
San Francisco	7,620	74
San Mateo	1,232	18
South San Francisco	209	11
Woodside	4,272	47
Other Communities		
Alameda	90	4
Aptos	204	8
Ben Lomond	10	2
Berkeley	6	3
Boulder Creek	207	7
Capitola	3,840	35
Carmel	1	1
Carmel Valley	52	1
Felton	981	10
Fremont	10	1
La Selva Beach	87	1
Lafayette	16	1
Los Altos	61,647	389
Los Altos Hills	12,304	65
Los Gatos	46,755	215
Moraga	124	2
Morgan Hill	369	1
Mountain View	2,669	38
Oakland	5,269	32
Palo Alto	79,307	437
Santa Cruz	27,057	157
Saratoga	2,091	23
Scotts Valley	22,391	115
Soquel	9,947	114
Sunnyvale	3	2
The Sea Ranch	1	1
Watsonville	336	2
	317,020	**2,160**



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

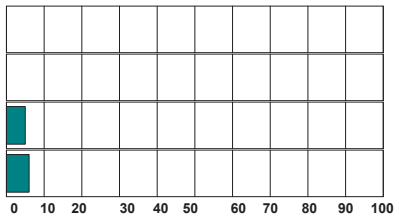
Monthly Noise Complainant Summary Map June 2016

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

Complainant Location

Monthly Nighttime Power Runups Report (85-06-AOB)
San Francisco International Airport -- Director's Report
Period : **June 2016**
Time of Day : From 10 pm through 7 am

Airline	Code	Number of Runups	Runups Per 1,000 Departures	Percentage of Runups
DELTA	DAL	1	0.8	7%
Virgin America	VRD	1	0.6	7%
UNITED	UAL	6	1.1	40%
American Airlines	AAL	7	4.8	47%
Total		**15**		



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

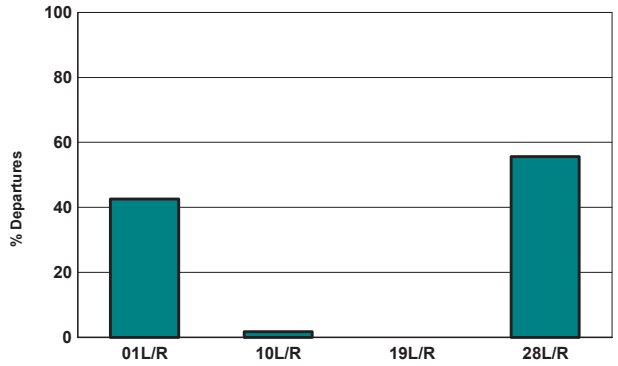
Late Night Preferential Runway Use Report
San Francisco International Airport -- Director's Report
Period: Mune 2016
Time of Day: Late Night (1 am to 6 am)

Runway Utilization (1 am to 6 am)

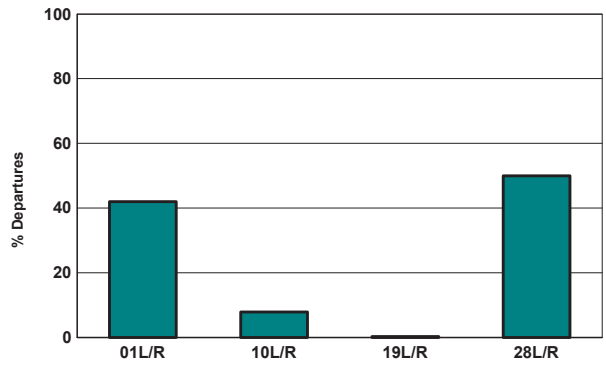
J onthly Met Departures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
01L/R	155	149	168	166	167	216	-	-	-	-	-	-	1,021
10L/R	72	14	85	8	3	9	-	-	-	-	-	-	191
19L/R	5	-	-	-	-	-	-	-	-	-	-	-	5
28L/R	85	93	216	250	287	282	-	-	-	-	-	-	1,213
Total	**317**	**256**	**469**	**424**	**457**	**507**	**-**	**-**	**-**	**-**	**-**	**-**	**2,430**
01L/R	49%	58%	36%	39%	37%	43%	0%	0%	0%	0%	0%	0%	42%
10L/R	23%	5%	18%	2%	1%	2%	0%	0%	0%	0%	0%	0%	8%
19L/R	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28L/R	27%	36%	46%	59%	63%	56%	0%	0%	0%	0%	0%	0%	50%

Current J onth (1 am to 6 am)



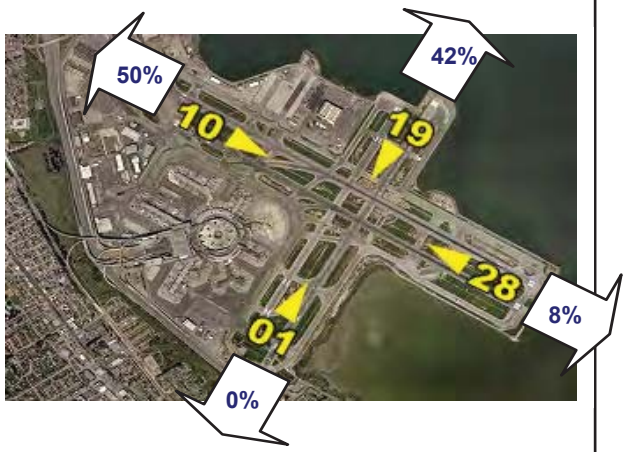
Year-to-Date (1am to 6 am)



Current J onth (1 am to 6 am)

Numbers rounded to nearest whole percentages

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



Numbers rounded to nearest whole percentages

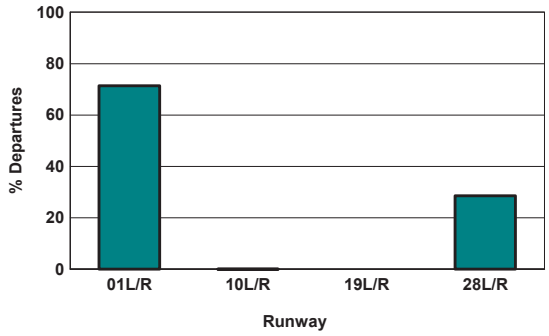
Air Carrier Runway Use Summary Report
San Francisco International Airport -- Director's Report
Period: June 2016
Time of Day : All Hours

Runway Utilization (All Hours)

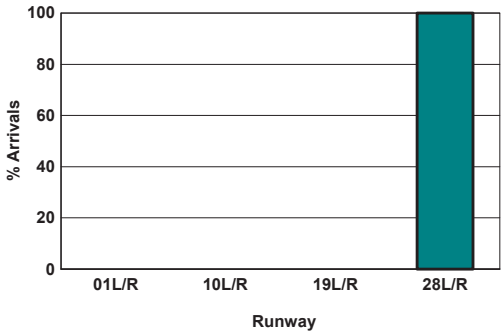
Source: Airport Noise Monitoring System

	Runway Utilization				Total
	01L/R	*10L/R*	*19L/R*	*28L/R*	
Total Monthly Operations					
Departures	13,125	11	0	5,266	18,402
Arrivals	0	0	0	18,394	18,394
Percentage Utilization					
Departures	71.3%	0.1%	0.0%	28.6%	100%
Arrivals	0.0%	0.0%	0.0%	100.0%	100%

Departures (All Hours)



Arrivals (All Hours)



Percentage Departure Utilization

Numbers rounded to nearest whole percentages

Percentage Arrival Utilization

Numbers rounded to nearest whole percentages

SFO Airport/Community Roundtable
Meeting No. 300 Overview
Wednesday, April 3, 2016

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

Roundtable Chairperson, Cliff Lentz, called the Regular Meeting of the SFO Airport / Community Roundtable to order, at approximately 7:08 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
John Martin – City and County of San Francisco Airport Commission
David Takashima – City and County of San Francisco Mayor's Office
Elizabeth Lewis – Town of Atherton
Cliff Lentz – City of Brisbane
Ricardo Ortiz – City of Burlingame
Sam Hindi – City of Foster City
Ann Schneider – City of Millbrae
Sue Digre – City of Pacifica
Ann Wengert – Town of Portola Valley
Janet Borgens – City of Redwood City
Ken Ibarra – City of San Bruno
Matt Grocott – City of San Carlos
David Lim – City of San Mateo
Deborah Gordon – Town of Woodside

REGULAR MEMBERS ABSENT
City and County of San Francisco Board of Supervisors (Vacant)
County of San Mateo Board of Supervisors
C/CAG Airport Land Use Committee (ALUC)
City of Belmont
City of Daly City
City of Half Moon Bay
Town of Hillsborough
City of Menlo Park
City of South San Francisco
Town of Woodside

ROUNDTABLE STAFF
James A. Castañeda, AICP – Roundtable Coordinator
Cindy Gibbs – Roundtable Technical Support (Consultant)

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

2. Public Comments on Items Not on the Agenda

A total of 11 members of the public spoke to express concern over aircraft noise over their communities. The communities represented were Pacifica, Montclair (Oakland), Woodside, Los Altos, South San Francisco and San Mateo. Comments included lack of fund for replacing windows provided as part of the Noise Insulation Program, the failings of NextGen implementation, and impacts to respective communities as either a result of NextGen or ongoing issues.

CONSENT AGENDA

3. Review of Airport Director's Reports for October 2015
4. Review of Roundtable Regular Meeting Overview for December 2, 2015 and February 3, 2016

Pacifica representative Sue Digre requested that item 3 (Review of Airport Director's Report for October 2015) be pulled from the Consent Agenda for discussion.

DISCUSSION: Pacifica representative Sue Digre had some questions on the report to have clarified. Bert Ganoung, Noise Abatement Manager, answered those questions, as well as discussed areas where reports could provide additional information in the future. Millbrae representative Ann Schneider inquired about considering night reporting on engine noise from take-offs, as well as wind data. Town of Portola Valley Ann Wengert suggested including pre-NextGen data to use as a metric in comparing trends and impacts. Pacifica resident Ray Ramos submitted questions to be included as part of the minutes (attached).

ACTION: Elizabeth Lewis **MOVED** approval of the Consent Agenda. The motion was seconded by Janet Borgens and **CARRIED**, unanimously.

REGULAR AGENDA

5. Review of SFO FlyQuiet Report for Q4 2015 & Discussion/Feedback of FlyQuiet report format

Bert Ganoung, Noise Abatement Manager, provided an overview of the fourth quarter Fly Quiet report for 2015, as well as potential changes with the report's format and solicited feedback from Roundtable members.

DISCUSSION: City of Redwood City representative Janet Borgens asked what are the repercussions of directing what type of aircrafts can fly at SFO. Mr. Ganoung responded that due to the Airport Capacity Act of 1990, the airport is not allowed to do so. However since its inception, the FAA has required the airlines to adopt quieter aircraft by certain benchmark years. City of San Carlos representative Matt Grocott recommended having clearer correlation of complaints with the data presented in reports.

6. Airport Director's Comments

Airport Public Communications Officer Doug Yakel provided a brief update on the airport's current operation. Mr. Yakel indicated that Alaska Airlines is in the initial stages of purchase Virgin America. Details of the merger are limited, and it's unclear how that'll impacts operations at SFO. It was reported that work is continuing to make adjustments to the noise reports presented to the Roundtable, and encourage Roundtable members to provide feedback.

7. Presentation and Discussion, FAA Initiative to Address Noise Concern
8. Status, Departures and Arrivals

Roundtable Technical Consultant Cindy Gibbs provided a brief overview of the Technical Working Group's goals and objectives from their meetings. Noise Abatement Manager Bert Ganoung displayed a visual presentation from the FAA that illustrates flights in the bay area on a typical day and the intricate network of flight paths from San Francisco, Oakland, and San Jose.

DISCUSSION: Chairperson Lentz asked Kathleen Wentworth, aide to Congresswoman's Speirs' office, to give a brief update on the progress on establishing the Select Committee on South Bay Arrivals as discussed at a recent meeting with the Congresswoman. Ms. Wentworth provided an overview of the makeup of the committee, as well as their expected purview. Members of the Roundtable who were in attendance provided their comments of the meeting as well.

Residents of Woodside and Los Altos provided comments regarding altitudes at the Woodside VOR, propose and goals of optimized profile descents, and additional investigations on vectoring. Woodside representative Deborah Gordon expressed that the map to evaluate noise needs to go further south. Vice-Chairperson Elizabeth Lewis indicated that the there will be some overlap between the Roundtable and the new Select Committee, but that the Roundtable should be prepared to be more flexible with meetings and procedures. City of Pacifica representative Sue Digre advocated that the health be key consideration for airlines to help address as a cost of doing business at SFO.

OTHER MATTERS

9. Upcoming Noise 101 Workshop for Members

Roundtable Coordinator James Castaneda announced an upcoming Noise 101 will be offered to Roundtable members, and will be reaching out to coordinate dates.

10. Airport Noise Briefing

No briefing was provided.

11. Member Communications / Announcements

DISCUSSION: Roundtable Coordinator James Castañeda announced the next meeting will be conducted at SFO Aviation Library and Museum to conduct the Roundtable's 35th Anniversary event.

12. Adjourn

The meeting was adjourned at 10:27 p.m.

Roundtable meeting overviews are considered draft until approved by the Roundtable at a regular meeting. An audio recording of this meeting is available at the Roundtable's website.

Questions and Comments
About the 6 April 2016
San Francisco International Airport
Community Roundtable
Agenda and Agenda Packet
By
Ray Ramos, P.E.

Comment A: The following questions are specific to Agenda Item 3 which is the Airport Directors Report to be presented as a consent item and is the Monthly Noise Exceedance Report for October 2015 (page 12 of the 44 page agenda package).

Question 1 – Here we are in April 2016 receiving a report about exceedances that occurred five months in the past – is it possible to report on more recent exceedances?

Question 2 – The report identifies the airline responsible for exceedances, but does not indicate where the exceedance was recorded – is it possible to report at which of SFO's numbered permanent noise monitoring station an exceedance was recorded.

Question 3 – Is it possible for the Director's Exceedance Report to clearly identify the exceedance threshold setting for each of the SFO permanent noise monitors and indicate in the report the maximum dBA reading was recorded for an exceedance?

Question 4 – **What are the consequences for an airline that causes an exceedance?**

Question 5 - Would it be possible for SFO to have a public link to its flight tracker program that indicates the dBA levels at each of its noise monitoring sites as each aircraft noise level is recorded?

Questions and Comments
About the 6 April 2016
San Francisco International Airport
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By
Ray Ramos, P.E.

Comment B - Still related to Directors Exceedance Report – The report indicates a total of 1,154 exceedances by all the airlines listed, but it should be noted that six (6) airlines caused 62.4 percent (%) of the total, which were the following:

1. United (UAL) 308 exceedances or 26.7% of total
2. Asiana (AAR) 152 exceedances or 13.2% of total
3. Korean Air (KAL) 82 exceedances or 7.1% of total
4. CATHAY PACIFIC (CPA) 64 exceedances or 5.5% of total
5. American Airlines (AAL) 60 exceedance or 5.2% of total
6. EVAAIR (EVA) 54 exceedances or 4.7% of total

Question 6 - Would it be possible for the Director's Exceedance Report to present what aircraft types, makes, and models caused what number of exceedances?

Question 7 – Would it be possible for the Director's Exceedance Report include a statement from each airline that has exceedances as to what they intend to do to prevent future exceedances and how soon they believe they will no longer cause exceedances?

Comment C – On page 14 of 44 of the Agenda Packet the Monthly Noise Complaint Summary is presented for October 2015 indicating a total number of complaints received from a community.

Question 8 – Would it be possible for the Director to include in the Monthly Noise Complaint Summary additionally a summary of the types of disturbance (required when filing a official noise complaint with SFO) recorded for received complaints?

REGULAR AGENDA

Regular Meeting # 302
August 3, 2016

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Fly Quiet Report

Presented at the August 3, 2016
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office
Second Quarter 2016

SFO San Francisco International Airport

Fly Quiet Program

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

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

Program Goals

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

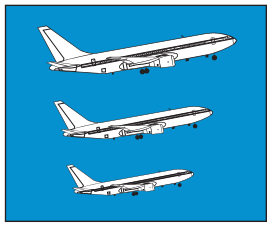
Program Reports

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

Program Elements

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

SFO's Fly Quiet Ratings



Fleet Noise Quality

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

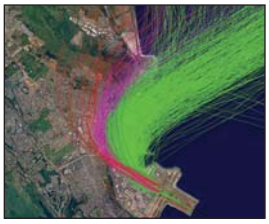
Noise Exceedance

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

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

Nighttime Preferential Runway Use

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



Shoreline Departure Quality

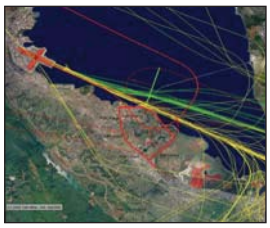
Aircraft departing SFO using Runways 28L and 28R are also considered by the Fly Quiet grading system whenever they use the Shoreline Departure Procedure. This predominately VFR (visual flight rules) departure steers aircraft to the northeast shortly after takeoff in an attempt to keep aircraft and aircraft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

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

Gap Departure Quality

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

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



Foster City Arrival Quality

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

Revised date: 5/15/09

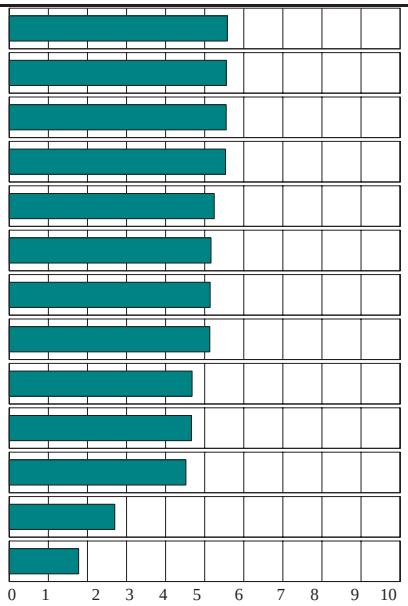
Airline Fly Quiet Summary Report - 2nd Quarter 2016

April 1 to June 30, 2016

Airline		Fleet Noise Quality	Noise Exceedance	Nighttime Runway Use	Departures Shoreline	Departures Gap	Arrivals Foster City	Final Score	Airline Fly Quiet Rating
AIR CHINA	CCA	10.00	9.98	-	-	7.38	-	9.12	
中国南方航空 CHINA SOUTHERN AIRLINES	CSN	9.50	10.00	-	-	7.25	-	8.92	
Lufthansa	DLH	9.09	9.97	-	7.86	6.64	-	8.39	
Compass Airlines	CPZ	10.00	9.92	-	9.95	6.94	4.69	8.30	
ANA	ANA	7.15	10.00	-	-	6.65	-	7.93	
wow air	WOW	4.31	10.00	-	9.00	7.75	-	7.77	
sun country airlines	SCX	5.82	9.97	-	10.00	7.50	5.00	7.66	
SkyWest AIRLINES	SKW	10.00	9.98	3.08	9.69	7.08	5.14	7.49	
SWISS	SWR	8.17	9.92	-	-	4.22	-	7.44	
FRONTIER AIRLINES	FFT	5.49	9.93	3.65	9.63	6.81	8.56	7.35	
XL Airways	XLF	4.05	10.00	-	7.50	7.19	-	7.18	
DELTA	DAL	6.22	9.91	4.21	8.50	6.84	7.34	7.17	
Southwest	SWA	5.73	9.86	3.43	9.92	6.73	7.02	7.11	
AIR CANADA	ACA	5.22	9.91	3.33	9.12	6.73	8.05	7.06	
WESTJET	WJA	5.82	9.52	-	9.17	5.63	5.00	7.03	
Virgin america	VRD	4.98	9.93	5.56	9.63	5.30	6.08	6.91	
AIR NEW ZEALAND	ANZ	6.89	7.75	-	-	5.93	-	6.86	
AEROMEXICO	AMX	5.82	9.68	3.33	10.00	7.04	5.00	6.81	
ATLAS AIR	GTI	4.86	8.94	3.33	8.86	8.61	5.78	6.73	
中國東方航空 CHINA EASTERN	CES	4.79	9.98	-	-	5.37	-	6.71	
Avianca	TAI	5.03	9.40	2.96	10.00	7.50	5.11	6.67	
Alaska	ASA	5.27	9.87	3.33	9.72	6.60	4.89	6.61	
American Airlines	AAL	5.18	9.85	3.74	8.38	4.48	7.44	6.51	
jetBlue	JBU	4.79	9.85	3.13	7.62	5.89	7.39	6.44	
ETIHAD	ETD	7.15	9.61	-	5.00	5.42	5.00	6.44	
								6.29	SFO AVERAGE
UNITED	UAL	5.82	9.85	3.48	7.85	5.39	4.92	6.22	
FedEx	FDX	3.65	9.23	-	9.03	3.25	5.79	6.19	
KLM Royal Dutch Airlines	KLM	4.43	9.93	-	4.41	5.60	-	6.09	
HAWAIIAN AIRLINES	HAL	4.05	9.38	-	-	5.94	5.00	6.09	
AIRFRANCE	AFR	8.92	9.90	0.00	-	5.45	-	6.07	
Emirates	UAE	10.00	10.00	-	0.00	4.02	-	6.00	
CHINA AIRLINES	CAL	5.49	8.82	0.21	10.00	5.84	5.00	5.89	
Scandinavian Airlines	SAS	8.17	9.85	0.00	-	5.35	-	5.84	
NCA Nippon Cargo Airlines	NCA	10.00	8.86	0.00	-	5.30	5.00	5.83	
JAPAN AIRLINES	JAL	7.15	8.65	0.34	-	6.84	-	5.75	
Aer Lingus	EIN	4.05	10.00	-	-	2.92	-	5.66	
BRITISH AIRWAYS	BAW	7.94	9.98	0.00	-	4.56	-	5.62	
virgin atlantic	VIR	8.75	9.99	3.33	0.00	6.49	5.00	5.59	

Airline		*Fleet Noise Quality*	*Noise Exceedance*	*Nighttime Runway Use*	*Departures Shoreline*	*Departures Gap*	Arrivals Foster City	*Final Score*
KOREAN AIR	KAL	9.81	7.27	0.33	-	5.49	5.00	*5.58*
FIJI AIRWAYS	FJI	4.05	7.92	-	-	4.69	-	*5.55*
CATHAY PACIFIC	CPA	7.15	8.45	0.00	-	7.17	5.00	*5.55*
AIR INDIA	AIC	7.15	9.09	0.00	3.75	8.21	5.00	*5.53*
ASIANA AIRLINES	AAR	4.80	7.70	0.85	-	7.87	5.00	*5.25*
SINGAPORE AIRLINES	SIA	7.15	9.06	0.11	-	4.33	-	*5.16*
TURKISH AIRLINES	THY	7.15	9.98	-	0.00	3.43	-	*5.14*
EVA AIR	EVA	6.91	8.42	0.16	-	5.17	5.00	*5.13*
airberlin	BER	4.05	10.00	-	2.50	2.16	-	*4.68*
CopaAirlines	CMP	5.82	9.55	0.00	3.75	4.19	-	*4.66*
Philippines	PAL	7.40	6.92	0.00	-	3.76	-	*4.52*
QANTAS	QFA	3.43	1.17	0.00	-	6.20	-	*2.70*
KALITTA AIR	CKS	3.34	0.00	0.26	0.00	2.06	5.00	*1.78*
SFO Average		**6.43**	**9.09**	**1.74**	**7.03**	**5.79**	**5.65**	**6.29**

Airline Fly Quiet Rating

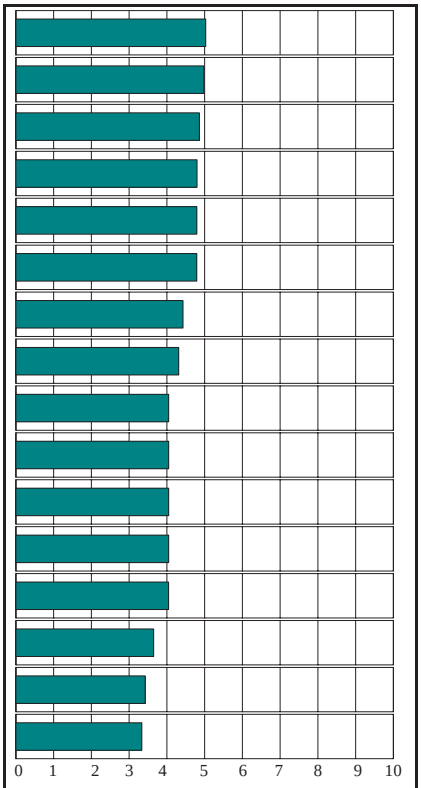


Fleet Noise Quality - 2nd Quarter 2016

April 1 to June 30, 2016

Airline		Nationwide Fleet Noise Quality Rating	San Francisco Average Daily Jet Operations	San Francisco Score	Fleet Noise Quality Rating
AIR CHINA	CCA	3.46	1	10.00	
NCA Nippon Cargo Airlines	NCA	3.90	1	10.00	
Emirates	UAE	7.89	1	10.00	
SkyWest Airlines	SKW	10.00	109	10.00	
Compass Airlines	CPZ	10.00	13	10.00	
KOREAN AIR	KAL	4.05	2	9.81	
中国南方航空 China Southern Airlines	CSN	5.64	1	9.50	
Lufthansa	DLH	6.09	2	9.09	
AIRFRANCE	AFR	5.49	1	8.92	
virgin atlantic	VIR	5.84	2	8.75	
Scandinavian Airlines	SAS	4.96	1	8.17	
SWISS	SWR	5.17	1	8.17	
BRITISH AIRWAYS	BAW	4.34	2	7.94	
Philippines	PAL	5.09	1	7.40	
AIR INDIA	AIC	4.77	0	7.15	
ANA	ANA	5.43	1	7.15	
CATHAY PACIFIC	CPA	4.18	2	7.15	
ETIHAD	ETD	0.00	1	7.15	
JAPAN AIRLINES	JAL	4.20	1	7.15	
SINGAPORE AIRLINES	SIA	5.93	2	7.15	
TURKISH AIRLINES	THY	6.80	1	7.15	
EVA AIR	EVA	5.05	2	6.91	
AIR NEW ZEALAND	ANZ	4.00	1	6.89	
				6.43	SFO AVERAGE
DELTA	DAL	4.92	39	6.22	
CopaAirlines	CMP	6.46	1	5.82	
sun country airlines	SCX	5.82	2	5.82	
WESTJET	WJA	5.82	1	5.82	
AEROMEXICO	AMX	5.54	3	5.82	
UNITED	UAL	5.83	173	5.82	
Southwest	SWA	5.70	44	5.73	
CHINA AIRLINES	CAL	3.62	2	5.49	
FRONTIER AIRLINES	FFT	6.41	7	5.49	
Alaska	ASA	5.10	18	5.27	
AIR CANADA	ACA	6.75	10	5.22	
American Airlines	AAL	3.94	46	5.18	

Airline		*Nationwide* *Fleet Noise Quality Rating*	*San Francisco* *Average Daily Jet Operations*	*Score*	Fleet Noise Quality Rating
Avianca	TAI	5.18	1	*5.03*	
Virgin America	VRD	5.31	59	*4.98*	
Atlas Air	GTI	0.93	1	*4.86*	
Asiana Airlines	AAR	3.93	2	*4.80*	
China Eastern	CES	4.63	1	*4.79*	
jetBlue	JBU	6.13	16	*4.79*	
KLM Royal Dutch Airlines	KLM	4.67	1	*4.43*	
WOW air	WOW	0.00	0	*4.31*	
airberlin	BER	5.92	0	*4.05*	
Aer Lingus	EIN	4.05	1	*4.05*	
Fiji Airways	FJI	0.00	0	*4.05*	
XL Airways	XLF	4.05	0	*4.05*	
Hawaiian Airlines	HAL	6.21	2	*4.05*	
FedEx	FDX	2.80	1	*3.65*	
Qantas	QFA	3.47	1	*3.43*	
Kalitta Air	CKS	0.60	0	*3.34*	

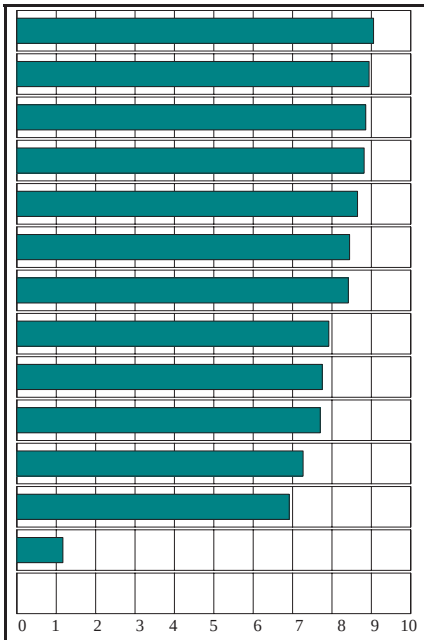


AVERAGE	4.82	11	6.43

Airline		Noise Exceedances				Noise Exceedance Quality Rating
		Total Noise Exceedances	*Total Quarterly Operations*	*Exceedances per 1000 Operations*	***Score***	
ANA	ANA	0	182	0	***10.00***	
airberlin	BER	0	62	0	***10.00***	
中国南方航空 CHINA SOUTHERN AIRLINES	CSN	0	181	0	***10.00***	
Aer Lingus	EIN	0	180	0	***10.00***	
Emirates	UAE	0	181	0	***10.00***	
WOW air	WOW	0	31	0	***10.00***	
XL Airways	XLF	0	18	0	***10.00***	
virgin atlantic	VIR	1	321	3	***9.99***	
SkyWest	SKW	87	19,764	4	***9.98***	
中国東方航空 CHINA EASTERN	CES	1	184	5	***9.98***	
AIR CHINA	CCA	1	181	6	***9.98***	
TURKISH AIRLINES	THY	1	181	6	***9.98***	
BRITISH AIRWAYS	BAW	2	360	6	***9.98***	
sun country airlines	SCX	3	370	8	***9.97***	
Lufthansa	DLH	3	361	8	***9.97***	
KLM Royal Dutch Airlines	KLM	4	216	19	***9.93***	
virgin america	VRD	200	10,691	19	***9.93***	
FRONTIER AIRLINES	FFT	24	1,227	20	***9.93***	
SWISS	SWR	4	182	22	***9.92***	
Compass Airlines	CPZ	54	2,442	22	***9.92***	
DELTA	DAL	162	7,085	23	***9.91***	
AIR CANADA	ACA	46	1,836	25	***9.91***	
AIRFRANCE	AFR	7	256	27	***9.90***	
Alaska	ASA	115	3,263	35	***9.87***	
Southwest	SWA	301	7,933	38	***9.86***	
jetBlue	JBU	112	2,875	39	***9.85***	
Scandinavian Airlines	SAS	7	178	39	***9.85***	
American Airlines	AAL	327	8,308	39	***9.85***	
UNITED	UAL	1,257	31,420	40	***9.85***	
AEROMEXICO	AMX	43	501	86	***9.68***	
ETIHAD	ETD	19	181	105	***9.61***	
CopaAirlines	CMP	22	181	122	***9.55***	
WESTJET	WJA	31	242	128	***9.52***	
Avianca	TAI	41	256	160	***9.40***	
HAWAIIAN AIRLINES	HAL	60	364	165	***9.38***	
FedEx	FDX	55	266	207	***9.23***	
					9.09	SFO AVERAGE
AIR INDIA	AIC	19	78	244	***9.09***	

Airline	Noise Exceedances: *Total Noise Exceedances*	*Total Quarterly Operations*	*Exceedances per 1000 Operations*	***Score***
SIA	91	361	252	***9.06***
GTI	74	262	282	***8.94***
NCA	47	154	305	***8.86***
CAL	103	326	316	***8.82***
JAL	65	180	361	***8.65***
CPA	178	429	415	***8.45***
EVA	163	385	423	***8.42***
FJI	5	9	556	***7.92***
ANZ	105	175	600	***7.75***
AAR	178	290	614	***7.70***
KAL	265	363	730	***7.27***
PAL	178	216	824	***6.92***
QFA	361	153	2359	***1.17***
CKS	171	64	2672	***0.00***

Noise Exceedance Quality Rating



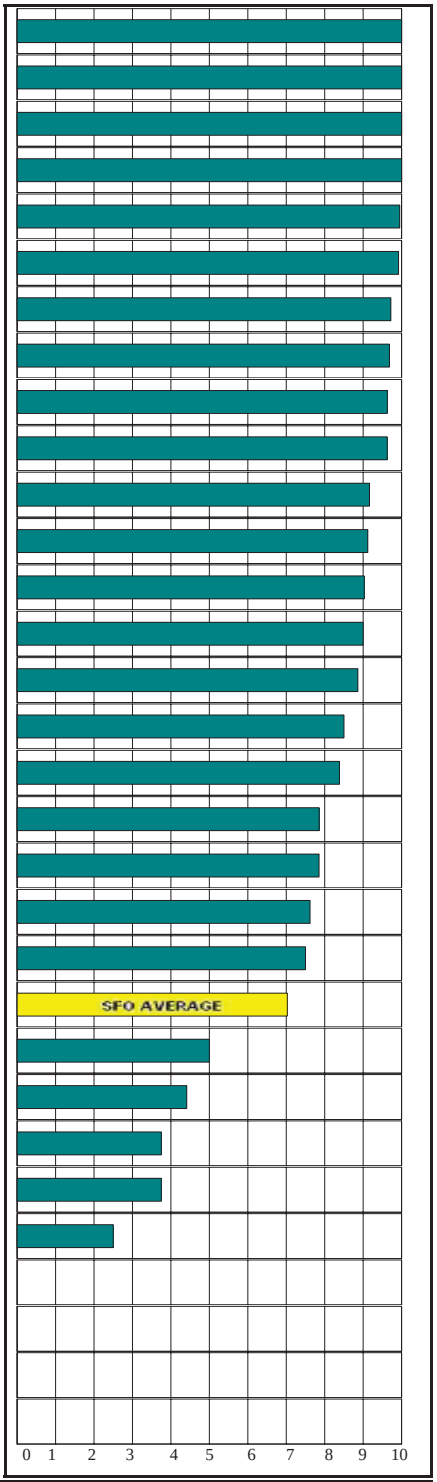
TOTAL	**4,993**	**105,905**		
SFO AVERAGE			**243**	**9.09**

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***	
Virgin America	VRD	**3**	0%	67%	33%	0%	***5.56***	
DELTA	DAL	**19**	0%	26%	74%	0%	***4.21***	
American Airlines	AAL	**171**	1%	15%	80%	4%	***3.74***	
FRONTIER AIRLINES	FFT	**21**	5%	0%	95%	0%	***3.65***	
UNITED	UAL	**186**	1%	10%	83%	6%	***3.48***	
Southwest	SWA	**104**	1%	3%	94%	2%	***3.43***	
AIR CANADA	ACA	**1**	0%	0%	100%	0%	***3.33***	
AEROMEXICO	AMX	**10**	0%	10%	80%	10%	***3.33***	
Alaska	ASA	**2**	0%	0%	100%	0%	***3.33***	
ATLAS AIR	GTI	**2**	0%	50%	0%	50%	***3.33***	
virgin atlantic	VIR	**2**	0%	50%	0%	50%	***3.33***	
jetBlue	JBU	**16**	0%	0%	94%	6%	***3.13***	
SkyWest AIRLINES	SKW	**13**	0%	8%	77%	15%	***3.08***	
Avianca	TAI	**90**	1%	1%	83%	14%	***2.96***	
							1.74	SFO AVERAGE
ASIANA AIRLINES	AAR	**47**	9%	0%	0%	91%	***0.85***	
JAPAN AIRLINES	JAL	**88**	1%	0%	7%	92%	***0.34***	
KOREAN AIR	KAL	**90**	3%	0%	0%	97%	***0.33***	
KALITTA AIR	CKS	**26**	0%	4%	0%	96%	***0.26***	
CHINA AIRLINES	CAL	**94**	2%	0%	0%	98%	***0.21***	
EVA AIR	EVA	**129**	2%	0%	0%	98%	***0.16***	
SINGAPORE AIRLINES	SIA	**88**	1%	0%	0%	99%	***0.11***	
AIRFRANCE	AFR	**1**	0%	0%	0%	100%	***0.00***	
AIR INDIA	AIC	**1**	0%	0%	0%	100%	***0.00***	
BRITISH AIRWAYS	BAW	**1**	0%	0%	0%	100%	***0.00***	
CopaAirlines	CMP	**1**	0%	0%	0%	100%	***0.00***	
CATHAY PACIFIC	CPA	**118**	0%	0%	0%	100%	***0.00***	
NCA Nippon Cargo Airlines	NCA	**1**	0%	0%	0%	100%	***0.00***	
Philippines	PAL	**2**	0%	0%	0%	100%	***0.00***	
QANTAS	QFA	**1**	0%	0%	0%	100%	***0.00***	
Scandinavian Airlines	SAS	**1**	0%	0%	0%	100%	***0.00***	
								0 1 2 3 4 5 6 7 8 9 10
TOTAL		**1,329**						
SFO AVERAGE			**1%**	**8%**	**33%**	**58%**	**1.74**	

Shoreline Departure Rating - 2nd Quarter 2016

April 1 to June 30,2016

Airline		Shoreline Departures					Shoreline Departure Rating
		Total	Successful	Marginal	Poor	Score	
AeroMexico	AMX	1	100%	0%	0%	*10.00*	
China Airlines	CAL	1	100%	0%	0%	*10.00*	
Sun Country Airlines	SCX	47	100%	0%	0%	*10.00*	
Avianca	TAI	1	100%	0%	0%	*10.00*	
Compass Airlines	CPZ	104	99%	1%	0%	*9.95*	
Southwest	SWA	128	98%	2%	0%	*9.92*	
Alaska	ASA	197	94%	6%	0%	*9.72*	
SkyWest Airlines	SKW	843	95%	4%	1%	*9.69*	
Frontier Airlines	FFT	54	93%	7%	0%	*9.63*	
Virgin America	VRD	442	93%	7%	0%	*9.63*	
WestJet	WJA	12	92%	0%	8%	*9.17*	
Air Canada	ACA	131	83%	16%	1%	*9.12*	
FedEx	FDX	31	81%	19%	0%	*9.03*	
WOW air	WOW	5	80%	20%	0%	*9.00*	
Atlas Air	GTI	22	77%	23%	0%	*8.86*	
Delta	DAL	377	72%	25%	2%	*8.50*	
American Airlines	AAL	402	72%	24%	4%	*8.38*	
Lufthansa	DLH	7	57%	43%	0%	*7.86*	
United	UAL	1,475	66%	26%	9%	*7.85*	
JetBlue	JBU	147	53%	46%	1%	*7.62*	
XL Airways	XLF	2	50%	50%	0%	*7.50*	
						7.03	SFO AVERAGE
Etihad	ETD	1	0%	100%	0%	*5.00*	
KLM Royal Dutch Airlines	KLM	17	24%	41%	35%	*4.41*	
Air India	AIC	4	0%	75%	25%	*3.75*	
Copa Airlines	CMP	4	25%	25%	50%	*3.75*	
airberlin	BER	2	0%	50%	50%	*2.50*	
Kalitta Air	CKS	1	0%	0%	100%	*0.00*	
Turkish Airlines	THY	2	0%	0%	100%	*0.00*	
Emirates	UAE	2	0%	0%	100%	*0.00*	
Virgin Atlantic	VIR	1	0%	0%	100%	*0.00*	
TOTAL		**4,463**					
SFO AVERAGE			**60%**	**20%**	**20%**	**7.03**	



Gap Departure Climb Rating - 2nd Quarter 2016

April 1 to June 30, 2016

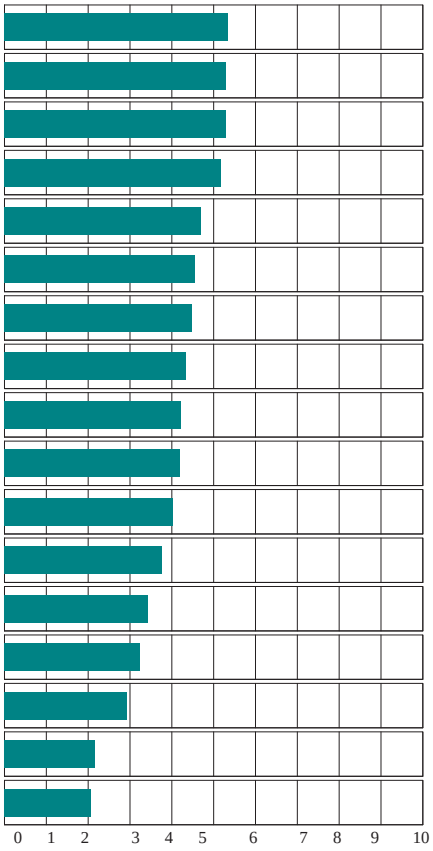
Airline		Gap Departures		Gap Departure Quality Rating
		Total	Score	
	GTI	26	8.61	
	AIC	35	8.21	
ASIANA AIRLINES	AAR	141	7.87	
	WOW	5	7.75	
	SCX	1	7.50	
	TAI	13	7.50	
	CCA	90	7.38	
	CSN	90	7.25	
	XLF	4	7.19	
	CPA	213	7.17	
	SKW	950	7.08	
	AMX	41	7.04	
	CPZ	96	6.94	
	JAL	82	6.84	
	DAL	286	6.84	
	FFT	31	6.81	
	ACA	13	6.73	
	SWA	568	6.73	
	ANA	91	6.65	
	DLH	173	6.64	
	ASA	112	6.60	
	VIR	114	6.49	
	QFA	76	6.20	
	HAL	16	5.94	
	ANZ	87	5.93	
	JBU	104	5.89	
	CAL	161	5.84	
			5.79	SFO AVERAGE
	WJA	4	5.63	
	KLM	25	5.60	
	KAL	174	5.49	
	AFR	126	5.45	
	ETD	86	5.42	
	UAL	3537	5.39	
	CES	92	5.37	

Gap Departure Climb Rating - 2nd Quarter 2016

April 1 to June 30, 2016

Airline		Gap Departures Total	Gap Departures Score
Scandinavian Airlines	SAS	90	5.35
Virgin America	VRD	696	5.30
Nippon Cargo Airlines	NCA	75	5.30
EVA AIR	EVA	190	5.17
FIJI AIRWAYS	FJI	4	4.69
BRITISH AIRWAYS	BAW	166	4.56
American Airlines	AAL	465	4.48
SINGAPORE AIRLINES	SIA	177	4.33
SWISS	SWR	91	4.22
Copa Airlines	CMP	85	4.19
Emirates	UAE	88	4.02
Philippines	PAL	107	3.76
TURKISH AIRLINES	THY	87	3.43
FedEx	FDX	5	3.25
Aer Lingus	EIN	90	2.92
airberlin	BER	26	2.16
KALITTA AIR	CKS	31	2.06

Gap Departure Quality Rating

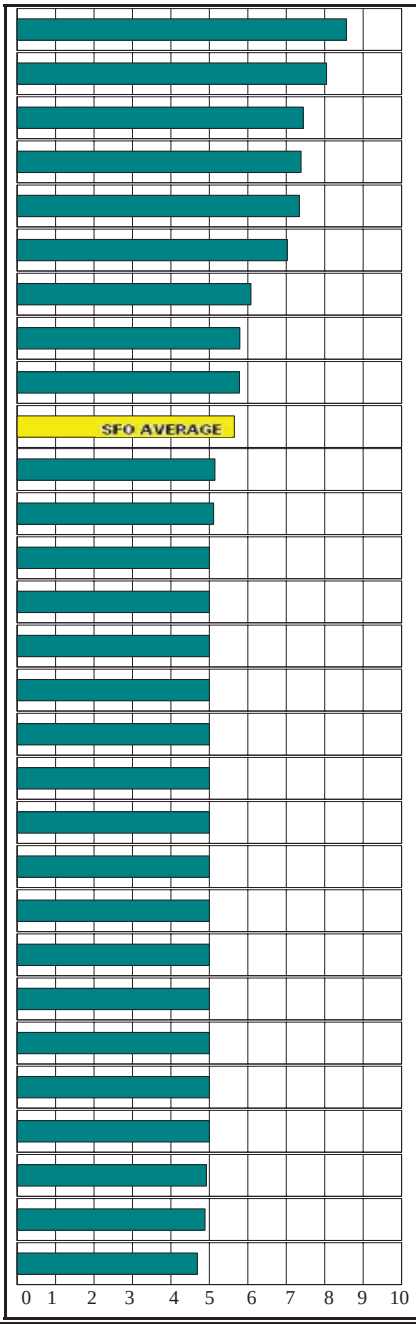


TOTAL	**10136**	
SFO Average		**5.79**

Foster City Arrival Rating - 2nd Quarter 2016

April 1 to June 30,2016

Airline		Foster City Arrivals					Foster City Arrival Rating
		Total	*Successful*	*Marginal*	*Poor*	*Score*	
FRONTIER AIRLINES	FFT	**94**	71%	29%	0%	*8.56*	
AIR CANADA	ACA	**82**	62%	37%	1%	*8.05*	
American Airlines	AAL	**631**	50%	50%	1%	*7.44*	
jetBlue	JBU	**220**	48%	52%	0%	*7.39*	
DELTA	DAL	**297**	47%	53%	0%	*7.34*	
Southwest	SWA	**341**	43%	55%	2%	*7.02*	
Virgin america	VRD	**185**	23%	75%	2%	*6.08*	
FedEx	FDX	**63**	19%	78%	3%	*5.79*	
ATLAS AIR	GTI	**51**	16%	84%	0%	*5.78*	
						5.65	SFO AVERAGE
SkyWest	SKW	**207**	10%	84%	7%	*5.14*	
Avianca	TAI	**90**	3%	96%	1%	*5.11*	
ASIANA AIRLINES	AAR	**49**	2%	96%	2%	*5.00*	
AIR INDIA	AIC	**2**	0%	100%	0%	*5.00*	
AEROMEXICO	AMX	**6**	0%	100%	0%	*5.00*	
CHINA AIRLINES	CAL	**3**	0%	100%	0%	*5.00*	
KALITTA AIR	CKS	**25**	0%	100%	0%	*5.00*	
CATHAY PACIFIC	CPA	**2**	0%	100%	0%	*5.00*	
ETIHAD	ETD	**1**	0%	100%	0%	*5.00*	
EVA AIR	EVA	**9**	0%	100%	0%	*5.00*	
HAWAIIAN AIRLINES	HAL	**4**	0%	100%	0%	*5.00*	
KOREAN AIR	KAL	**90**	0%	100%	0%	*5.00*	
NCA Nippon Cargo Airlines	NCA	**4**	0%	100%	0%	*5.00*	
sun country airlines	SCX	**1**	0%	100%	0%	*5.00*	
virgin atlantic	VIR	**1**	0%	100%	0%	*5.00*	
WESTJET	WJA	**6**	0%	100%	0%	*5.00*	
UNITED	UAL	**1,325**	31%	37%	2%	*4.92*	
Alaska	ASA	**134**	1%	95%	4%	*4.89*	
Compass Airlines	CPZ	**32**	0%	94%	6%	*4.69*	



TOTAL	**3,955**				
SFO AVERAGE		**15%**	**83%**	**1%**	**5.65**

CORRESPONDENCES

Regular Meeting # 302
August 3, 2016

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Dave Ong (AIR)

From: Dave Ong (AIR)
Sent: Friday, February 26, 2016 1:29 PM
To: 'Ken Miles'
Cc: 'Sue Digre'; 'James Castañeda (jcastaneda@sforoundtable.org)'; Bert Ganoung (AIR); 'BT Broadband'; 'Cliff Lentz'
Subject: RE: Community Noise Equivalent Levels for Community Noise Monitor Site #19
Attachments: Short Term Aircraft Noise Monitoring - Pacifica.pdf; Supplement Aircraft Noise Terminology Metric.pdf

Hi Ken,

Please find attached the report for monitoring done just outside your backyard from December 4, 2015 to December 15, 2015. Also attached is a PDF containing information on aircraft noise terminology and metric to assist in understanding the measurement results. Feel free to share these with the residents of Pacifica.

I've copied Honorable Cliff Lentz, the Airport Community Roundtable Chairperson and James Castaneda the Roundtable Coordinator to share the results with.

SFO will strive to improve aircraft noise abatement procedures to further reduce aircraft noise in your community. As always, please feel free to call me at (650) 821-5100 if you have any questions or would like to discuss this information.

Sincerely,

David

From: Ken Miles [mailto:kenmilesaqa@earthlink.net]
Sent: Tuesday, February 16, 2016 5:39 PM
To: Dave Ong (AIR)
Cc: 'Sue Digre'
Subject: Re: Community Noise Equivalent Levels for Community Noise Monitor Site #19

Hi David.

Thanks for the reply. Looking forward to seeing the data and sharing it with our Pacifica Posse.

Ken

From: Dave Ong (AIR)
Sent: Tuesday, February 16, 2016 3:33 PM
To: 'Ken Miles'
Cc: 'Sue Digre'
Subject: RE: Community Noise Equivalent Levels for Community Noise Monitor Site #19

Hi Ken,

I very sorry for the delay. I anticipate having this report to you before Friday, February 26, 2015.

Thank you,

David Ong

From: Ken Miles [mailto:kenmilesaqa@earthlink.net]
Sent: Thursday, February 11, 2016 1:17 PM
To: Dave Ong (AIR)
Cc: Sue Digre
Subject: Re: Community Noise Equivalent Levels for Community Noise Monitor Site #19

Hi David,

It's been a while since we spoke or communicated with one another. I was wondering when the detailed results of the data gathered by the Noise Monitor, at my home during mid-December last year, will be sent to me for my information and review. Thanks.

Ken Miles
111 Nataqua Ave.,
Pacifica CA

From: Dave Ong (AIR)
Sent: Tuesday, January 12, 2016 10:27 AM
To: mailto:kenmilesaqa@earthlink.net
Subject: Community Noise Equivalent Levels for Community Noise Monitor Site #19

Hello Mr. Ken Miles,

As discussed please find attached the Community Noise Equivalent Levels for Noise Monitor Site #19 during the same period as the monitoring done on your property.

Regards,

David Ong SFO
Noise Systems Manager | Aircraft Noise Abatement Office
San Francisco International Airport | P.O. Box 8097 | San Francisco 94128
Tel 650-821-5100 | www.flysfo.com | www.flyquietsfo.com

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www.avast.com

Short Term Aircraft Noise Monitoring

Pacifica

Prepared for the Vallemar Neighborhood
San Francisco International Airport Noise Abatement Office
P.O. Box 8097 San Francisco, CA 94128
(650) 821-5100
Technical Report #032016-P51-981

February 2016

Executive Summary

The San Francisco International Airport (SFO) Noise Abatement Office conducted short term noise monitoring in Pacifica, to determine the noise level within the Vallemar neighborhood from aircraft operations at SFO. One monitoring location was selected that is near the departure corridor with the assistance of a Pacifica resident. The overall average daily noise level from all aircraft was only 40dBA CNEL. The Community daily noise level was 51dBA CNEL. Noise from all aircraft over Pacifica did not increase the total average daily noise level at this monitoring site.

Introduction

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

Aircraft Noise Analysis

Noise measurements were taken at 100 block of Nataqua Avenue starting December 4, 2015 to December 15, 2015 using a sound level threshold of 55dBA from 7:00 a.m. to 10:00 p.m. and 50dBA from 10:00 p.m. to 7:00 a.m. This report evaluates periods where full 24 hour days of data are available, from December 5 through December 14. There were 27 identified correlated aircraft noise events associated with other Bay Area airports and 279 identified correlated aircraft noise events associated with SFO operations over the 10 day period. Table 1 below lists these events, along with community noise events detected by date and events' daily energy averages.

Table 1 - Noise Events by Date

		Average			Average			Average	
Date	SFO Events[1]	SEL[2]	Lmax[3]	Non-SFO Events	SEL	Lmax	Community Events	SEL	Lmax
12/5/2015	5	66	56	0	-	-	3	68	60
12/6/2015	19	69	59	1	64	55	20	78	67
12/7/2015	35	69	58	1	72	59	15	66	57
12/8/2015	14	69	57	1	68	59	8	68	61
12/9/2015	19	68	60	3	73	65	38	71	61
12/10/2015	19	71	61	3	76	66	113	69	59
12/11/2015	61	71	60	4	70	60	104	71	60
12/12/2015	44	70	60	3	68	57	19	69	59
12/13/2015	17	74	64	8	72	60	220	72	63
12/14/2015	46	71	61	3	70	60	102	66	58
Total	**279**			**27**			**642**		

[1] *SFO Events are Single SFO Aircraft, Multiple SFO Aircraft and Simultaneous SFO and Non-SFO Aircraft.*

[2] *SEL (Sound Exposure Level) are in decibels A-weighted.*

[3] *Lmax (Maximum Noise Level) are in decibels A-weighted.*

Table 2 below provides the resulting CNELs for this measurement period, while Tables 3, 4 and 5 provides details of SFO Events by Daytime, Evening and Nighttime hours. For the 306 aircraft noise events, the average aircraft generated Maximum Noise Level (Lmax) was 60dBA, the average Sound Exposure Level (SEL) was 71dBA, and the average aircraft noise event duration was 23 seconds. The computed levels for the average **Aircraft CNEL** was 40dBA, the average **Community CNEL** was 51dBA, and the **Total CNEL** was 51dBA. For comparison purposes, the cumulative aircraft noise level at permanent noise monitor #19 (Fairmont) located approximately 3.2 miles northwest was 62dBA for the same period.

Table 2 – Community Noise Equivalent Level over 10 Days

Community Noise Equivalent Level	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft (All)	29	43	40
Community	43	54	51
Total	43	55	51

Table 3 - SFO Aircraft Noise Data (Single Events) – Day (7:00 a.m. to 7:00 p.m.)

184 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	56	72	61
Aircraft SEL	64	83	71
Noise Event Duration (in seconds)	8 seconds	55 seconds	21 seconds

Table 4 - SFO Aircraft Noise Data (Single Events) – Evening (7:00 p.m. to 10:00 p.m.)

37 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	56	66	60
Aircraft SEL	63	76	70
Noise Event Duration (in seconds)	8 seconds	37 seconds	19 seconds

Table 5 - SFO Aircraft Noise Data (Single Events) – Night (10:00 p.m. to 7:00 a.m.)

58 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	51	67	59
Aircraft SEL	59	76	70
Noise Event Duration (in seconds)	8 seconds	120 seconds	32 seconds

All aircraft overflights, which flew within a cylindrical airspace of 2 miles in radius and 15,000 feet in height; centered on the measurement location were evaluated for this measurement period. A daily average of 144 overflights penetrated this airspace. An average of 22% (or 31 noise events per day) exceeded the two thresholds used to detect aircraft noise, and registered events on the noise monitor. Table 6 below details the amount of daily overflights versus aircraft noise events. Appendix 2 lists these events by Aircraft Type and their Maximum Noise Level.

Table 6 - Aircraft Overflights versus Noise Events

Date	Amount of PCA Overflights [3]	Amount of Aircraft Noise Events [4]	Aircraft CNEL (dBA)	Range (dBA)		Flow Pattern [8]
				Lmax [6]	SEL [7]	
12/5/2015 [1]	123	5	29	55 - 57	63 - 69	West
12/6/2015	150	20	38	53 - 62	64 - 74	West&SE
12/7/2015	179	36	41	53 - 62	64 - 74	West
12/8/2015	136	15	37	52 - 63	62 - 75	West
12/9/2015	145	22	38	51 - 70	59 - 76	West
12/10/2015	80	22	40	56 - 70	63 - 81	West & SL Ops [9]
12/11/2015	179	65	43	51 - 66	61 - 76	West
12/12/2015	163	47	42	51 - 65	60 - 75	West
12/13/2015	67	25	41	56 - 72	64 - 83	West & SL Ops & SE
12/14/2015 [2]	220	49	43	54 - 66	62 - 76	West
Total	1,442	306				
Average	144	31	**40[5] dBA**			

[1] 12/5/15 first Aircraft Noise Event was measured at 11:07 a.m. for this survey.

[2] 12/14/15 last First Aircraft Noise Event was measured at 11:46 p.m. for this survey.

[3] The Amount of PCA Overflights through a defined cylindrical airspace for a 24 hour period starting from midnight to 11:59:59 p.m. The cylindrical airspace is 2 miles in radius and 15,000 feet in height, centered on the monitor's location.

[4] Aircraft Noise Events include all SFO Aircraft, Multiple SFO Aircraft, Non-SFO Aircraft, and Simultaneous SFO & Non-SFO Aircraft.

[5] This figure is an energy average.

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

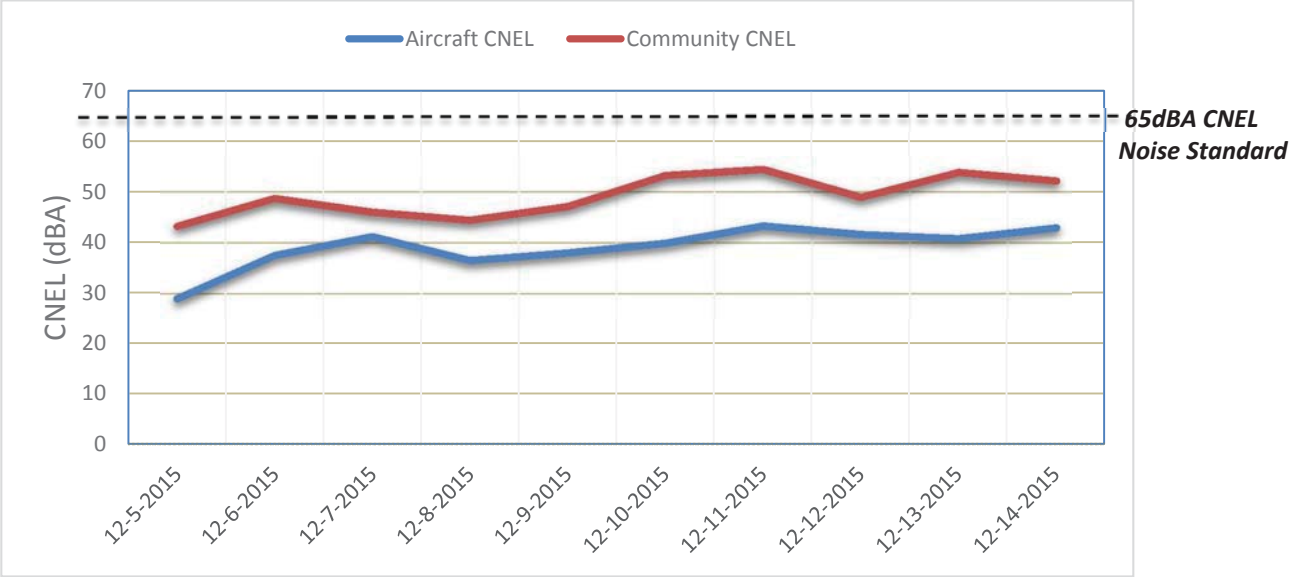
[7] SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and it's energy compressed into one second.

[8] Flow Pattern is the general flight paths used by aircraft to land and take-off based on wind direction and speed. See Appendix 1 for San Francisco Bay Area Major Jet Arrival and Departure West Flow and Southeast Plans.

[9] SL Ops -(Shoreline Departure Operations) off Runways 28 occurs when strong crosswind component prevents aircraft from safely departing off the north facing runways.

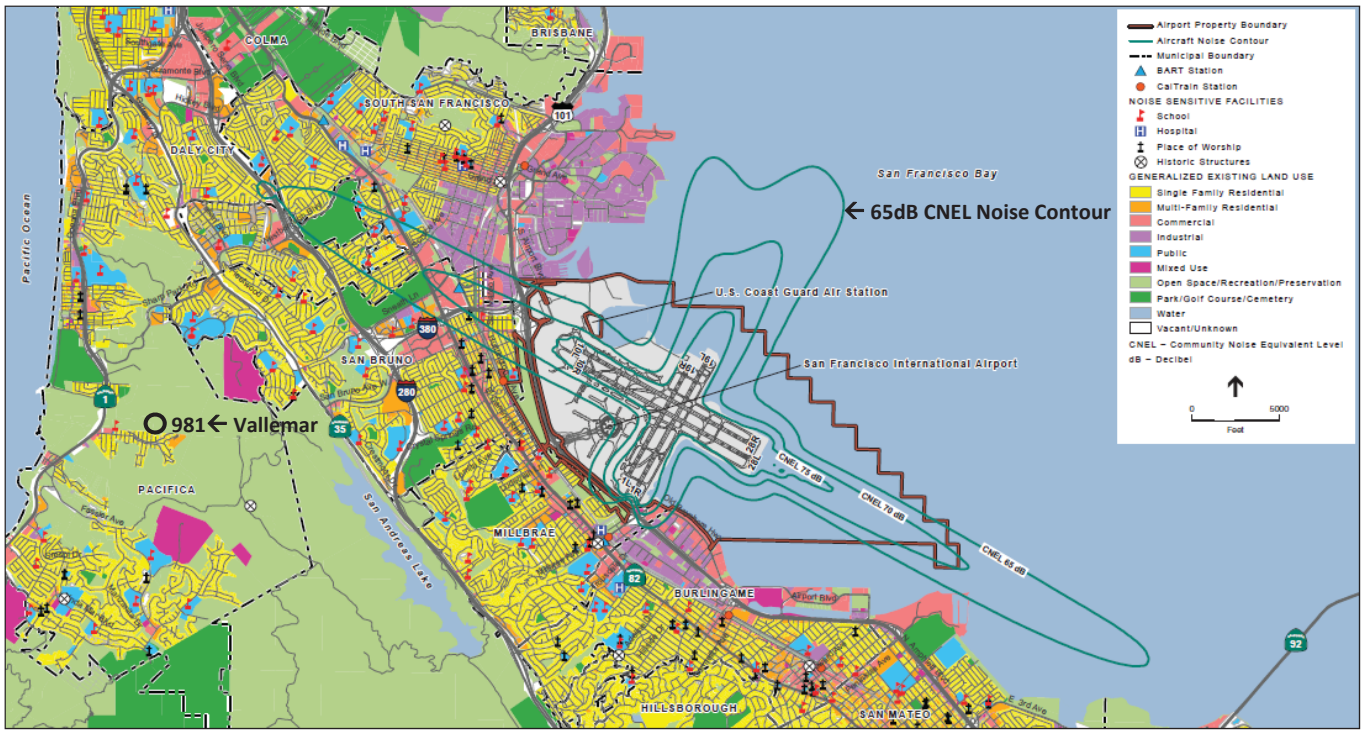
Conclusion

Aircraft noise levels in the Vallemar neighborhood of Pacifica are at levels expected in a community that is approximately 4.3 miles away from a large hub airport, but below several departure corridors serving four main commercial use runways (28L, 28R, 1L, 1R) at SFO. Aircraft noise measurements contribute 0.9dBA additional noise to the total cumulative average noise levels. The average Aircraft CNEL was 40dBA and the average Community CNEL was 51dBA. When Aircraft noise is added to the Community noise the Total CNEL does not increase and remains the same as Community CNEL.



The California Code of Federal Regulations, Title 21, Division 2.5, Chapter 6, paragraph 5012 states, "The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels." Since the average Aircraft CNEL was measured at 40dBA for the Vallemar neighborhood, this residential area has an acceptable level of aircraft noise as defined by state law. The extent of the 65dBA CNEL noise impact contour at SFO is shown on page 4. This noise contour was generated using Federal Aviation Administration's Integrated Noise Model (version 7.0d). The Federal Aviation Administration accepted this map as part of the Noise Exposure Map update under Federal Aviation Regulations Part 150 on January 29, 2016. The results of the field monitoring validates the extent of the 65dBA CNEL noise impact boundary confirming Aircraft CNEL is less than 65dBA CNEL for this location.

2014 Noise Exposure Map



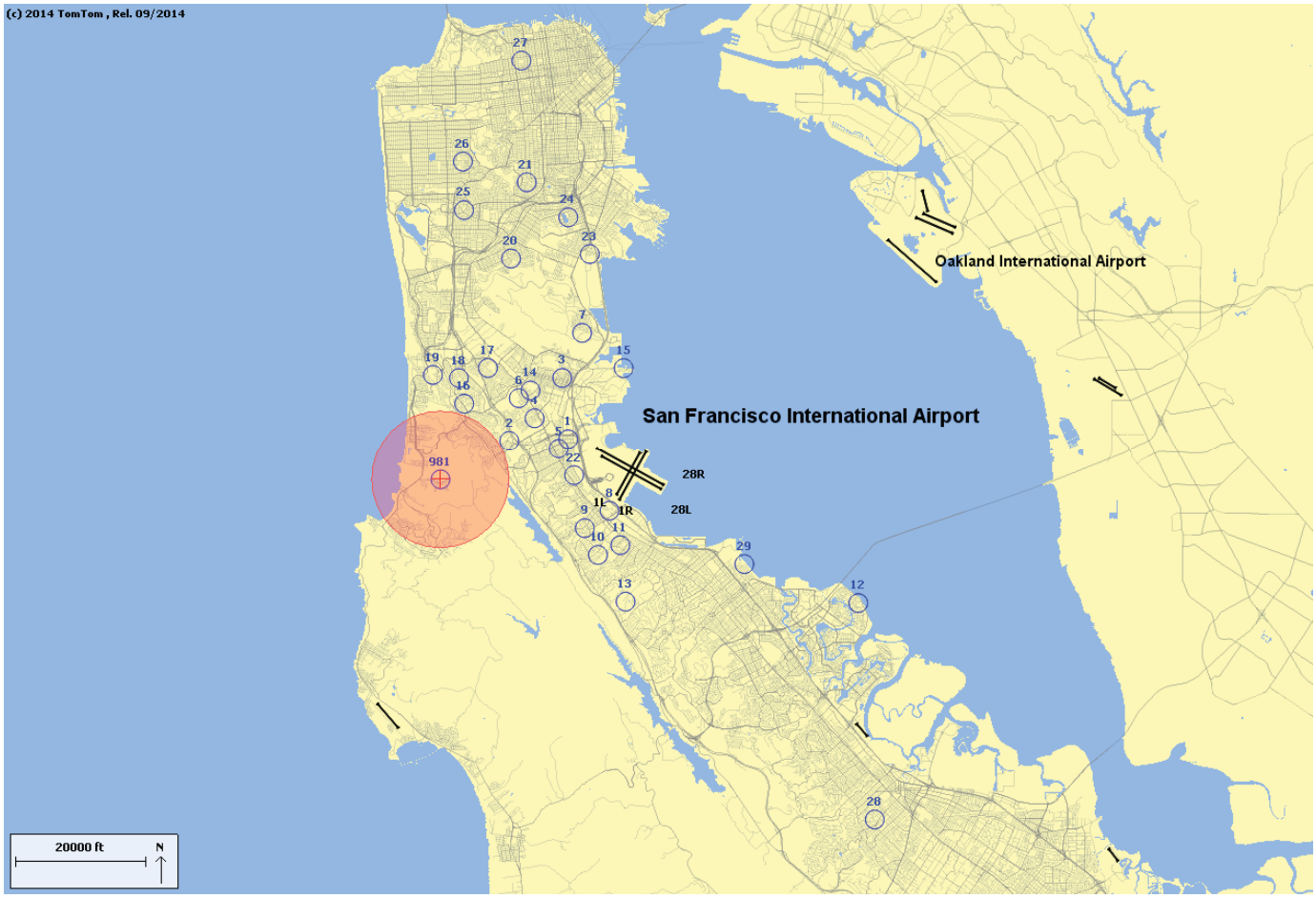
SOURCE: ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

SFO FAR Part 150 Noise Exposure Map Report . 120832

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

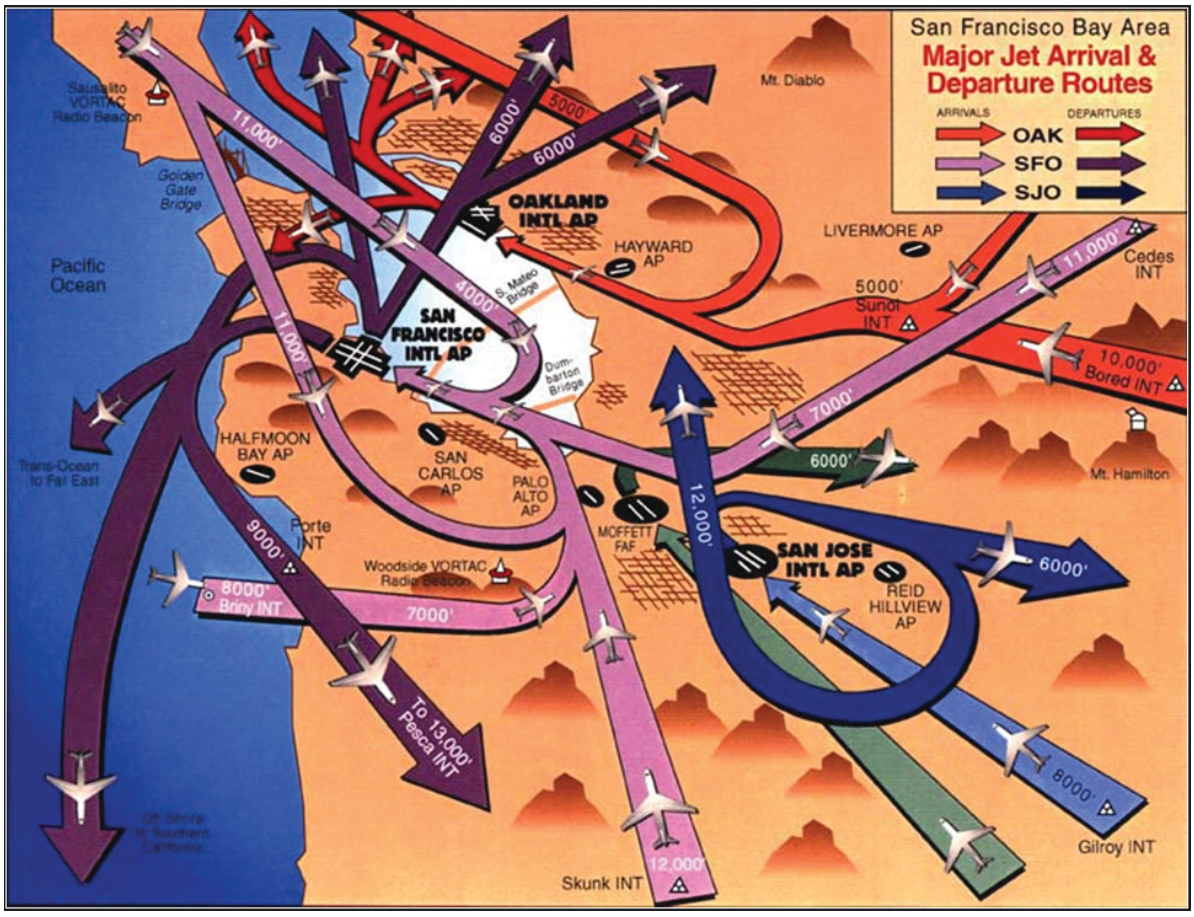
Figure 1 – Microphone and Tripod (main) and Monitor (bottom right)

Figure 2 - Monitoring Location #981 (red circle - 2 mile radius) and Permanent Noise Monitor Sites (blue circles)



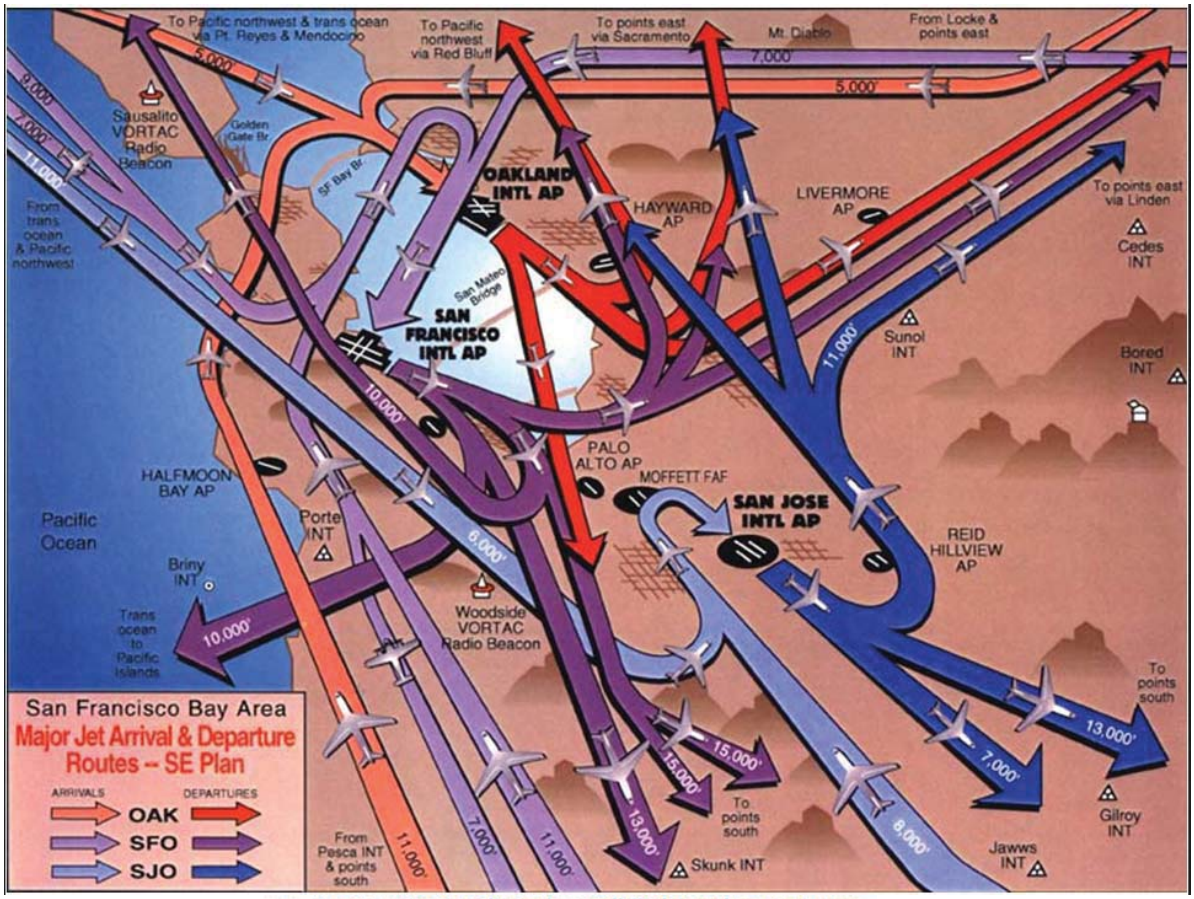
Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

West Flow Plan



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

Southeast Flow Plan



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

Appendix 2 – Noise Measurement Data Results

100 Block of Nataqua Avenue, Pacifica
Date: 12-5-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
A320	1	55.2	
B734	1	56.9	
B738	2	56.6	56.7
B753	1	56.3	
Total	**5**		

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
none		
Total	**0**	

100 Block of Nataqua Avenue, Pacifica
Date: 12-6-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)						
A320	7	56.5	55.7	60.2	58.9	55.9	56.6	56.8
B733	1	61.7						
B734	1	60.6						
B737	1	60.5						
B738	5	53.3	57.0	58.5	61.2	62.1		
B739	1	57.4						
B744	1	60.6						
CRJ7	1	56.2						
GLF4	1	59.5						
Total	**19**							

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
PC12	1	54.9
Total	**1**	

100 Block of Nataqua Avenue, Pacifica
Date: 12-7-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)							
A319	1	55.5							
A320	6	53.0	54.5	56.2	57.1	58.9	61.0		
A321	2	58.0	61.2						
B733	8	55.5	56.2	57.7	57.9	58.3	58.6	59.1	59.6
B734	1	58.2							
B738	7	55.9	56.8	56.9	57.4	57.6	59.3	61.1	
B739	5	55.5	55.7	55.9	57.1	59.3			
B752	1	57							
BE20	1	61.9							
CRJ2	1	58.5							
CRJ7	1	59.7							
E170	1	56.3							
Total	**35**								

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
B737	1	59.3
Total	**1**	

100 Block of Nataqua Avenue, Pacifica
Date: 12-8-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
A320	3	53.7	56.3	57.0
A321	1	54.3		
A332	1	57.9		
B733	2	51.6		
B737	1	54.6		
B738	2	57.5		
B739	2	54.8	58.8	
B752	1	63.1		
B762	1	52.5		
Total	**14**			

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
PC12	1	59.2
Total	**1**	

100 Block of Nataqua Avenue, Pacifica
Date: 12-9-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A320	5	50.9	56.2	57.4	60.9	62.3
A321	2	53.5	60.3			
B712	1	57.0				
B733	3	57.8	57.9	67.4		
B737	1	50.9				
B738	4	51.6	56.0	57.9	58.2	
CL35	1	60.7				
CRJ7	1	59.2				
E170	1	58.0				
Total	**19**					

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
B733	1	58.9	
Unknown	2	58.2	69.5
Total	**3**		

100 Block of Nataqua Avenue, Pacifica
Date: 12-10-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)					
A319	1	63.8					
A320	6	56.2	57.8	58.7	58.9	60.8	63.1
B733	3	57.9	62.3	66.7			
B737	2	59.5	65.7				
B738	4	56.5	58.0	59.9	60.5		
B788	1	58.4					
CRJ2	1	56.9					
E170	1	58.3					
Total	**19**						

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
B737	1	58.3
B738	1	58.3
F18	1	70.3
Total	**3**	

100 Block of Nataqua Avenue, Pacifica
Date: 12-11-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)																
A319	2	58.2	59.7															
A320	17	56.2	57.3	57.4	57.6	58.2	58.3	58.5	58.8	59.1	59.2	59.3	59.4	60.4	60.5	60.8	61.5	63.0
A321	2	58.0	64.0															
B350	1	57.0																
B712	1	58.8																
B733	5	59.3	59.7	60.7	62.7	65.7												
B734	1	64.1																
B737	7	58.0	58.4	58.9	60.3	60.4	60.9	62.3										
B738	9	57.3	58.3	59.0	59.2	59.7	60.5	60.9	61.6	64.0								
B739	6	57.6	57.7	57.8	59.1	59.3	63.4											
B753	1	63.8																
CRJ2	2	51.4	52.5															
E170	3	58.1	59.0	62.3														
F2TH	1	57.4																
HELO	2	58.4	64.0															
LJ31	1	62.9																
Total	**61**																	

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
B733	1	60.9	
B737	1	59.5	
C208	2	58.8	60.5
Total	**4**		

100 Block of Nataqua Avenue, Pacifica
Date: 12-12-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)										
A319	3	57.7	57.8	59.8								
A320	11	51.9	52.2	56.0	56.2	57.1	57.7	59.4	59.6			
A321	4	55.3	55.9	60.2	61.3							
B712	1	56.6										
B733	4	59.4	59.8	60.4	60.7							
B734	1	63.0										
B737	1	59.6										
B738	5	58.6	58.7	59.5	62.5	63.5						
B739	11	56.9	57.8	58.3	58.8	59.3	59.7	61.5	61.6	62.7	63.8	64.6
C162	1	58.8										
C560	1	56.9										
F2TH	1	57.0										
Total	**44**											

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
B737	3	59.2	58.4	51.1
Total	**3**			

100 Block of Nataqua Avenue, Pacifica
Date: 12-13-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)			
A319	2	58.7	58.8		
A320	1	57.5			
B712	1	58.4			
B733	1	63.5			
B737	1	63.7			
B739	4	56.7	61.9	62.3	63.9
B748	2	65.4	66.9		
B772	1	55.7			
B77W	1	71.5			
E170	1	56.3			
GLF4	1	65.2			
HELO	1	61.7			
Total	**17**				

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
B733	2	60.8	63.0	
B737	2	57.2	57.5	
DC10	1	60.0		
HELO	3	58.6	61.5	61.8
Total	**8**			

100 Block of Nataqua Avenue, Pacifica
Date: 12-14-2015

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)									
A319	2	58.3	60.0								
A320	4	56.2	57.5	60.2	60.7						
A321	2	59.0	64.6								
B733	7	59.2	59.8	60.9	61.8	61.9	62.8				
B737	5	56.0	59.4	59.7	60.9	63.2					
B738	11	58.9	59.5	59.6	59.8	60.0	61.0	61.4	62.0	62.7	63.2
B739	9	57.1	59.6	59.9	60.2	61.0	61.9	62.0	64.6	66.0	
B762	1	59.3									
BE20	1	61.7									
C172	1	63.8									
CRJ2	2	53.7	64.1								
CRJ7	1	57.4									
Total	**46**										

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
B733	1	60.3
B737	1	58.8
Unknown	1	61.2
Total	**3**	

Aircraft Type Reference Sheet

Wide Body Jet (Airplane fuselage is wide enough to accommodate two passenger aisles)		Narrow Body Jet (Airplane fuselage is wide enough to accommodate one passenger aisle)		Business Aircraft (Transportation for small groups of people)		General Aviation (Generally small, propeller-driven aircraft)		Helicopters (Aircraft operated by rotor blades)		Military (U.S. Military aircraft)	
A306	Airbus A300-600	A319	Airbus A319	AC50	North American Rockwell Commander 500	AA5	Grumman American AA-5	A139	Agusta Westland AW139	C130	Lockheed C-130 Hercules
A332	Airbus A330-200	A320	Airbus A320	B350	Beech 350 King Air	8KCAB	American Champion Decathlon	EC20	Eurocopter EC-120 Colibri	F18	McDonnell Douglas F/A-18 Hornet
A343	Airbus A340-300	A321	Airbus A321	BE20	Beechcraft 200 Super King Air	BE33	Beechcraft 35-B33 Debonair	EC45	Eurocopter EC-145	P3	Lockheed P-3 Orion
A346	Airbus A340-600	B733	Boeing 737-300	BE40	Beechcraft 400 Beechjet	BE35	Beechcraft 35 Bonanza	H60	Sikorsky MH-60 Black Hawk	T38	Northrop AT-38 Talon
A388	Airbus A380	B734	Boeing 737-400	BE9L	Beech 90 King Air	BE36	Beechcraft 36 Bonanza	HELO	Helicopter	V22	Bell Boeing V-22 Osprey
B744	Boeing 747-400	B735	Boeing 737-500	C210	Cessna 210 Centurion	BE55	Beechcraft 55 Baron	R22	Robinson R-22		
B748	Boeing 747-8	B737	Boeing 737-700	C25C	Cessna Citation CJ4	BE76	Beechcraft 76 Duchess	R44	Robinson R-44		
B762	Boeing 767-200	B738	Boeing 737-800	C421	Cessna 421 Golden Eagle	C140	Cessna 140				
B763	Boeing 767-300	B739	Boeing 737-900	C425	Cessna 425 Corsair/Conquest	C172	Cessna 172 Skyhawk				
B764	Boeing 767-400ER	B752	Boeing 757-200	C510	Cessna 510 Citation Mustang	C177	Cessna 177 Cardinal				
B772	Boeing 777-200	B753	Boeing 757-300	C525	Cessna 525 Citation CJ1	C180	Cessna 180				
B77W	Boeing 777-300ER	CRJ2	Bombardier CRJ-200	C560	Cessna 560 Citation 5	C182	Cessna 182 Skylane				
B788	Boeing 787-8	CRJ7	Bombardier CRJ-700	C56X	Cessna 560XL Citation Excel	C185	Cessna 185 Skywagon				
MD11	McDonnell Douglas MD-11	CRJ9	Bombardier CRJ-900	C680	Cessna 680 Citation Sovereign	C208	Cessna 208 Caravan				
		DH8D	Bombardier Dash 8 - Q400	C750	Cessna Citation X	C310	Cessna 310				
		E120	Embraer EMB 120 Brasilia	CL30	Bombardier Challenger 300	C337	Cessna 337 Super Skymaster				
		E170	Embraer EMB 170	E50P	Embraer EMB-500 Phenom 100	C340	Cessna 340				
		E45X	Embraer EMB 145XR	E55P	Embraer EMB-500 Phenom 300	CH7A	American Champion 7ECA Citabria Aurora				
		MD83	McDonnell Douglas MD-83	F2TH	Dassault Falcon 2000	COZY	Cozy MK IV				
		MD88	McDonnell Douglas MD-88	F900	Dassault Falcon 900	DA40	Diamond DA40 Diamond Star				
		MD90	McDonnell Douglas MD-90	FA7X	Dassault Falcon 7X	DA42	Diamond DA42 Twin Star				
				GALX	Dassault Falcon 900EX	LNC4	Lancair 4				
				GLF4	Gulfstream 4	M20	Aerostar				
				GLF5	Gulfstream 5	M20P	Mooney M-20				
				GL5T	Bombardier Global 5000	MU2	Mitsubishi MU-2				
				GLEX	Bombardier Global Express	P28A	Piper 28A Cheorkee				
				H25B	Hawker-Beechcraft Hawker 800/850	P28B	Piper 28B Cheorkee				
				HA4T	Hawker-Beechcraft Hawker 4000	P28R	Piper 28R Cheorkee				
				J328	Fairchild Dornier 328JET	P32R	Piper Saratoga				
				LJ30	Learjet 31A	PA24	Piper PA24 Comanche				
				LJ60	Learjet 60	PA32	Piper PA32 Cherokee Six				
				PC12	Pilatus PC-12 Eagle	PA44	Piper PA-44 Seminole				
				SW4	Fairchild Swearingen Metroliner	RV6	Vans RV-6				
				TBM7	Socata TBM-700	SR20	Cirrus SR-20				
				WW24	IAI 1124 Westwind	SR22	Cirrus SR-22				
						T182	Cessna T182 Turbo Skylane				

100 Block of Nataqua Avenue, Pacifica
Date: 12-5-2015 through 12-14-2015

All Aircraft Noise Events by Hour (SFO Aircraft & Non-SFO Aircraft)

Hour	12-5-2015	12-6-2015	12-7-2015	12-8-2015	12-9-2015	12-10-2015	12-11-2015	12-12-2015	12-13-2015	12-14-2015	Total
Midnight		1					2				3
1:00 a.m.											0
2:00 a.m.											0
3:00 a.m.											0
4:00 a.m.											0
5:00 a.m.		1		1				2	1	1	6
6:00 a.m.		1	7	3	2		2	5		2	22
7:00 a.m.			2	3	2		4	1		1	13
8:00 a.m.		1	1	1	3		3	3	5	1	18
9:00 a.m.		3	1			1	4	3	1	6	19
10:00 a.m.			1	1		1	4	5	3	4	19
11:00 a.m.	2		3			2	7	6		2	22
Noon		1	4				5	5	1	2	18
1:00 p.m.		2	3				1	1	2		9
2:00 p.m.		2	1		1	1	5	3	4	2	19
3:00 p.m.			2				3	2	1	4	12
4:00 p.m.			6		6	2	6	2		3	25
5:00 p.m.		1	1	1	2	3	2	3	1	3	17
6:00 p.m.		1			1	2	4	1	2	4	15
7:00 p.m.			1	1	1	4	1	2	1	4	15
8:00 p.m.		2		1		2	3	1	1	3	13
9:00 p.m.	1	1	1			1	4	1	2	1	12
10:00 p.m.			2		4	1	2			3	12
11:00 p.m.	2	3		3		2	3	1		3	17
Total	**5**	**20**	**36**	**15**	**22**	**22**	**65**	**47**	**25**	**49**	**306**

Dave Ong (AIR)

From: Dave Ong (AIR)
Sent: Wednesday, June 29, 2016 5:06 PM
To: 'Luis Betances'
Cc: Takashima, David (MYR); 'jcastaneda@sforoundtable.org'; Bert Ganoung (AIR); John Bergener (AIR)
Subject: RE: Short Term Aircraft Noise Monitoring Report for San Francisco
Attachments: Short Term Aircraft Noise Monitoring - San Francisco 6-29-2016 REV1.pdf

Hello everyone,

We found a mistake on page 3 of the report, specifically values provided in Table 6 were incorrect. We have since corrected these errors in the attached report titled, "Short Term Aircraft Noise Monitoring – San Francisco 6-29-2016 REV1."

I apologize for this error.

Thank you,

Dave

From: Dave Ong (AIR)
Sent: Wednesday, June 29, 2016 2:58 PM
To: 'Luis Betances'
Cc: Takashima, David (MYR); 'jcastaneda@sforoundtable.org'; Bert Ganoung (AIR); John Bergener (AIR)
Subject: Short Term Aircraft Noise Monitoring Report for San Francisco

June 29, 2016

Mr. Luis Betances
655 Joost Avenue
San Francisco, CA 94127

Dear Mr. Betances:

Thank you for allowing San Francisco International Airport (SFO) Noise Abatement Office the opportunity to collect aircraft noise measurements at your residence. Please find attached Short Term Aircraft Noise Monitoring report #062016-P50-982. This document contains the results of the monitoring performed covering Saturday, April 16 through Sunday, May 1, 2016. Also attached is an Aircraft Noise Terminology & Metric Supplement to help explain some of the terms used in the report.

I have also copied Mr. David Takashima, City and County of San Francisco Mayor's Office Airport Community Roundtable Representative to share the results with.

SFO will strive to improve aircraft noise abatement procedures to further reduce aircraft noise in your community and are continually developing initiatives to mitigate the impacts of aircraft noise by working with the Airport Community Roundtable, the Federal Aviation Administration, and the airlines operating here at SFO.

As always, please feel free to call me at (650) 821-5100 if you have any questions or would like to discuss this information.

Sincerely,

David Ong SFO
Noise Systems Manager | Aircraft Noise Abatement Office
San Francisco International Airport | P.O. Box 8097 | San Francisco 94128
Tel 650-821-5100 | www.flysfo.com | www.flyquietsfo.com

Short Term Aircraft Noise Monitoring

San Francisco

Prepared for the Sunnyside Neighborhood
San Francisco International Airport Noise Abatement Office
P.O. Box 8097 San Francisco, CA 94128
(650) 821-5100
Technical Report #062016-P50-982

April 2016

Executive Summary

The San Francisco International Airport (SFO) Noise Abatement Office conducted short term noise monitoring in San Francisco, to determine the noise level within the Sunnyside neighborhood from aircraft operations at SFO. The overall average daily noise level from all aircraft was only 44dBA CNEL. The Community daily noise level was 57dBA CNEL. Noise from all aircraft over San Francisco did not increase the total average daily noise level at this monitoring site.

Introduction

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

Aircraft Noise Analysis

Noise measurements were taken on the 600 block of Joost Avenue starting April 15, 2016 to May 2, 2016 using a sound level threshold of 59dBA from 7:00 a.m. to 10:00 p.m. and 56dBA from 10:00 p.m. to 7:00 a.m. This report evaluates periods where full 24 hour days of data are available, from April 16 through May 1. There were 182 identified correlated aircraft noise events associated with other Bay Area airports and 320 identified correlated aircraft noise events associated with SFO operations over the 16 day period. For the 502 aircraft noise events, the average aircraft generated Maximum Noise Level (Lmax) was 64dBA, the average Sound Exposure Level (SEL) was 74dBA, and the average aircraft noise event duration was 20 seconds. Table 1 below lists these events, along with community noise events detected by date and events' daily energy averages.

Table 1 - Noise Events by Date

		Average			Average			Average	
Date	SFO Events[1]	SEL[2]	Lmax[3]	Non-SFO Events	SEL	Lmax	Community Events	SEL	Lmax
04/16/2016	12	73	63	4	70	59	53	78	67
04/17/2016	41	74	66	4	75	66	102	73	64
04/18/2016	12	73	62	11	75	66	43	71	63
04/19/2016	13	73	63	17	81	71	115	77	71
04/20/2016	40	74	64	15	75	66	84	75	66
04/21/2016	14	76	66	12	74	63	68	73	64
04/22/2016	41	75	63	18	73	62	141	74	67
04/23/2016	25	74	64	16	75	65	28	73	67
04/24/2016	11	77	67	8	75	64	20	71	64
04/25/2016	16	73	64	7	71	62	31	74	66
04/26/2016	3	76	66	10	76	66	127	76	68
04/27/2016	6	75	65	6	72	63	39	76	66
04/28/2016	12	76	64	16	73	63	32	74	65
04/29/2016	7	74	63	9	75	64	60	74	66
04/30/2016	18	73	63	12	71	62	25	74	66
05/01/2016	49	75	64	17	74	65	70	73	64
Total	**320**			**182**			**1038**		

[1] SFO Events are Single SFO Aircraft, Multiple SFO Aircraft and Simultaneous SFO and Non-SFO Aircraft

[2] SEL (Sound Exposure Level) are in decibels A-weighted.

[3] Lmax (Maximum Noise Level) are in decibels A-weighted.

Table 2 below provides the resulting CNELs for this measurement period. The computed levels for the average **Aircraft CNEL** was 45dBA, the average **Community CNEL** was 57dBA, and the **Total CNEL** was 57dBA. For comparison purposes, the cumulative aircraft noise level at permanent noise monitor #25 (100 block of Aptos Avenue) located approximately 1 mile southwest was also 45dBA for the same period.

Table 2 – Community Noise Equivalent Level over 16 Days

Community Noise Equivalent Level	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft (All)	35	49	45
Community	54	59	57
Total	54	59	57

Tables 3, 4, and 5 provides details of SFO Aircraft Events by Daytime, Evening and Nighttime hours.

Table 3 - SFO Aircraft Noise Data (Single Events) – Day (7:00 a.m. to 7:00 p.m.)

216 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	60	78	64
Aircraft SEL	67	82	73
Noise Event Duration (in seconds)	8 seconds	54 seconds	19 seconds

Table 4 - SFO Aircraft Noise Data (Single Events) – Evening (7:00 p.m. to 10:00 p.m.)

33 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	60	68	63
Aircraft SEL	69	78	73
Noise Event Duration (in seconds)	8 seconds	35 seconds	19 seconds

Table 5 - SFO Aircraft Noise Data (Single Events) – Night (10:00 p.m. to 7:00 a.m.)

71 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	57	68	61
Aircraft SEL	67	80	72
Noise Event Duration (in seconds)	10 seconds	81 seconds	26 seconds

All aircraft overflights, which flew within a cylindrical airspace of 2 miles in radius and 15,000 feet in height; centered on the measurement location were evaluated for this measurement period. A daily average of 278 overflights penetrated this airspace. An average of 11% (or 31 noise events per day) exceeded the two thresholds used to detect aircraft noise, and registered events on the noise monitor. Table 6 below details the amount of daily overflights versus aircraft noise events. Appendix 2 lists these events by Aircraft Type and their Maximum Noise Level.

Table 6 - Aircraft Overflights versus Noise Events

Date	Amount of PCA Overflights[3]	Amount of Aircraft Noise Events[4]	Aircraft CNEL (dBA)	Range (dBA)		Flow Pattern[8]
				Lmax[6]	SEL[7]	
4/16/2016[1]	293	16	51	57-68	68-79	West
04/17/2016	335	45	50	58-78	67-82	West
04/18/2016	303	23	52	58-70	69-80	West & SE
04/19/2016	293	30	54	57-82	67-92	West
04/20/2016	298	55	52	57-71	69-80	West
04/21/2016	245	26	44	58-71	70-82	West
04/22/2016	235	59	45	58-69	67-79	West & SE
04/23/2016	247	41	51	58-71	67-80	West & SE
04/24/2016	235	19	54	60-72	69-81	West
04/25/2016	264	23	53	57-70	66-80	West
04/26/2016	262	13	52	60-74	68-83	West
04/27/2016	245	12	51	61-69	69-80	West
04/28/2016	316	28	53	60-68	69-78	West
04/29/2016	297	16	53	59-71	66-81	West
04/30/2016	245	30	52	58-67	66-78	West
05/01/2016[2]	328	66	52	58-73	68-80	West & SE
Total	4,441	502				
Average	**278**	**31**	**45[5] dBA**			

[1] 4/16/16 first Aircraft Noise Event was measured at 6:18 a.m. for this survey

[2] 5/1/16 last Aircraft Noise Event was measured at 11:59 p.m. for this survey

[3] The Amount of PCA Overflights through a defined cylindrical airspace for a 24-hour period starting at midnight to 11:59:59 p.m. The cylindrical airspace is two miles in radius and 15,000 feet in elevation, centered on the monitor's location

[4] Aircraft Noise Events include all SFO Aircraft, Multiple SFO Aircraft, Non-SFO Aircraft, and Simultaneous SFO & Non-SFO Aircraft

[5] This value is an energy average

[6] Lmax - The maximum noise level is a measurement of the peak level of a noise event

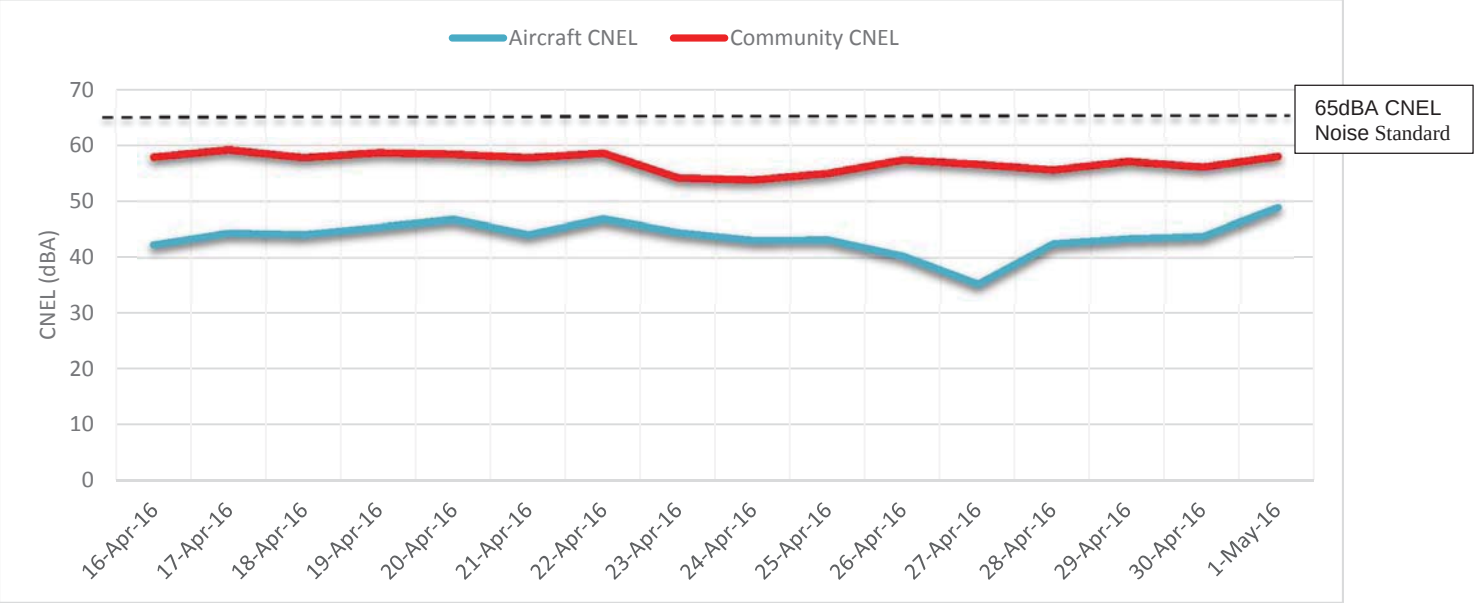
[7] SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and it's energy is compressed into one second.

[8] Flow Pattern is the general flight pattern used by arriving and departing aircraft based on wind speed and direction. See Appendix 1 for San Francisco Bay Area Major Jet Arrival and Departure patterns. West = West Flow, SE = Southeast Flow

[9] SL Ops (Shoreline Departure Operations) - Off of Runways 28L/R occurs when strong crosswind component prevents aircraft from safely departing off the north facing runways (01L/R)

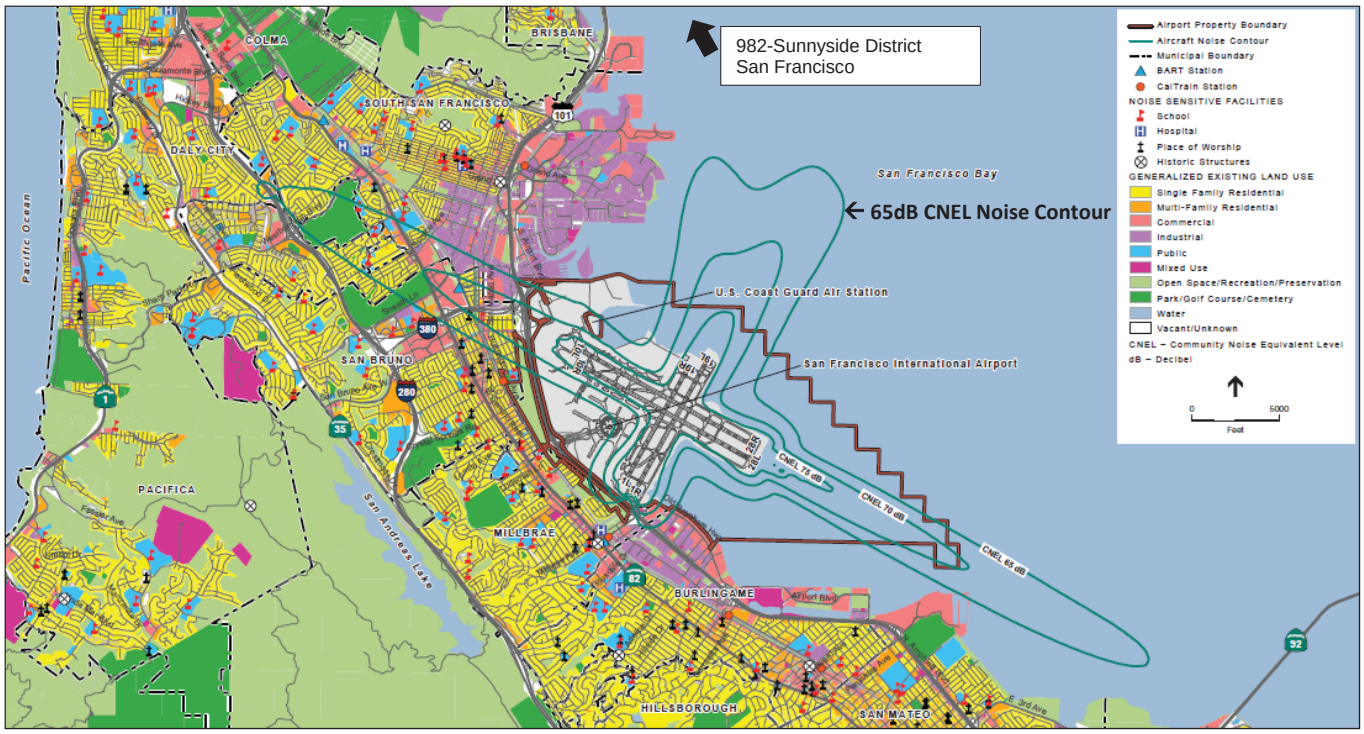
Conclusion

Aircraft noise levels were measured in the Sunnyside neighborhood of San Francisco. The community is approximately 8 miles away from San Francisco International Airport (SFO), and 12 miles away from Oakland International Airport (OAK) which are 2 large hub airports. The Sunnyside neighborhood is located below several departure corridors serving four main commercial use runways (28L, 28R, 1L, 1R) at SFO and one main commercial use runway at OAK (30). Aircraft typically above San Francisco consists of mostly departures from both SFO and OAK and arrivals via Point Reyes to SFO. Aircraft noise measurements contribute 0.7dBA additional noise to the total cumulative average noise levels. The average Aircraft CNEL was 45dBA and the average Community CNEL was 57dBA. When Aircraft noise is added to the Community noise the Total CNEL does not increase and remains the same as Community CNEL.



The California Code of Federal Regulations, Title 21, Division 2.5, Chapter 6, paragraph 5012 states, "The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels." Since the average Aircraft CNEL was measured at 45dBA for the Sunnyside neighborhood, this residential area has an acceptable level of aircraft noise as defined by state law. The extent of the 65dBA CNEL noise impact contour at SFO is shown on page 4. This noise contour was generated using Federal Aviation Administration's Integrated Noise Model (version 7.0d). The Federal Aviation Administration accepted this map as part of the Noise Exposure Map update under Federal Aviation Regulations Part 150 on January 29, 2016. The results of the field monitoring validates the extent of the 65dBA CNEL noise impact boundary confirming Aircraft CNEL is less than 65dBA CNEL for this location.

2014 Noise Exposure Map



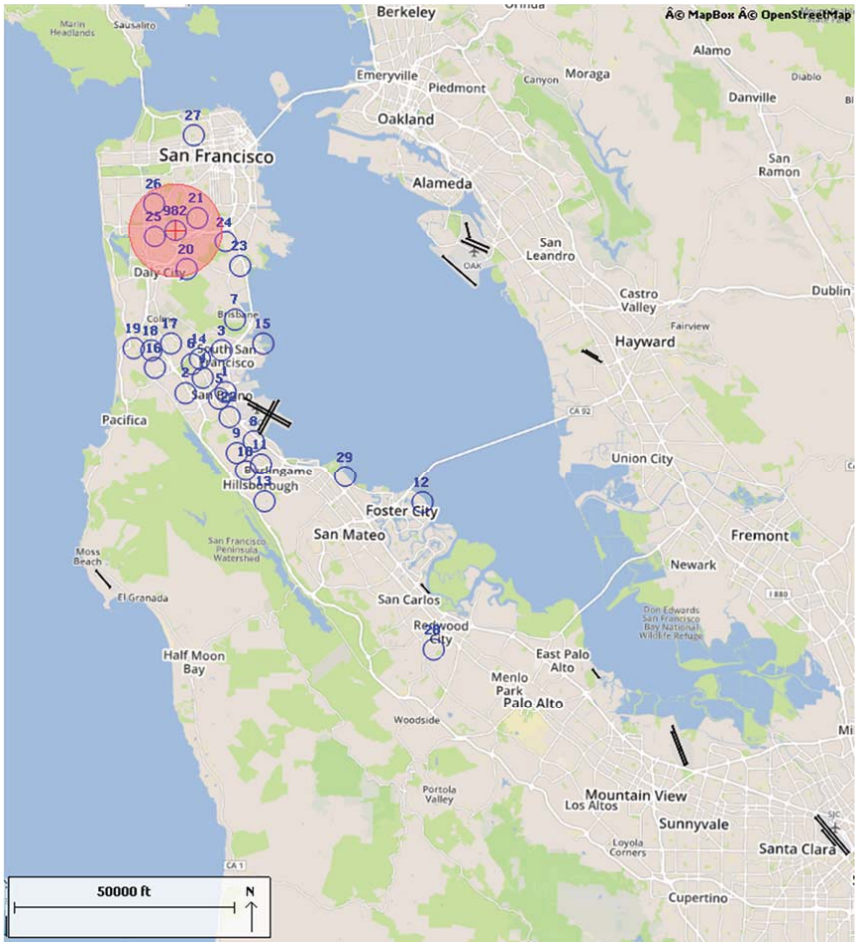
SOURCE: ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

SFO FAR Part 150 Noise Exposure Map Report . 120832

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

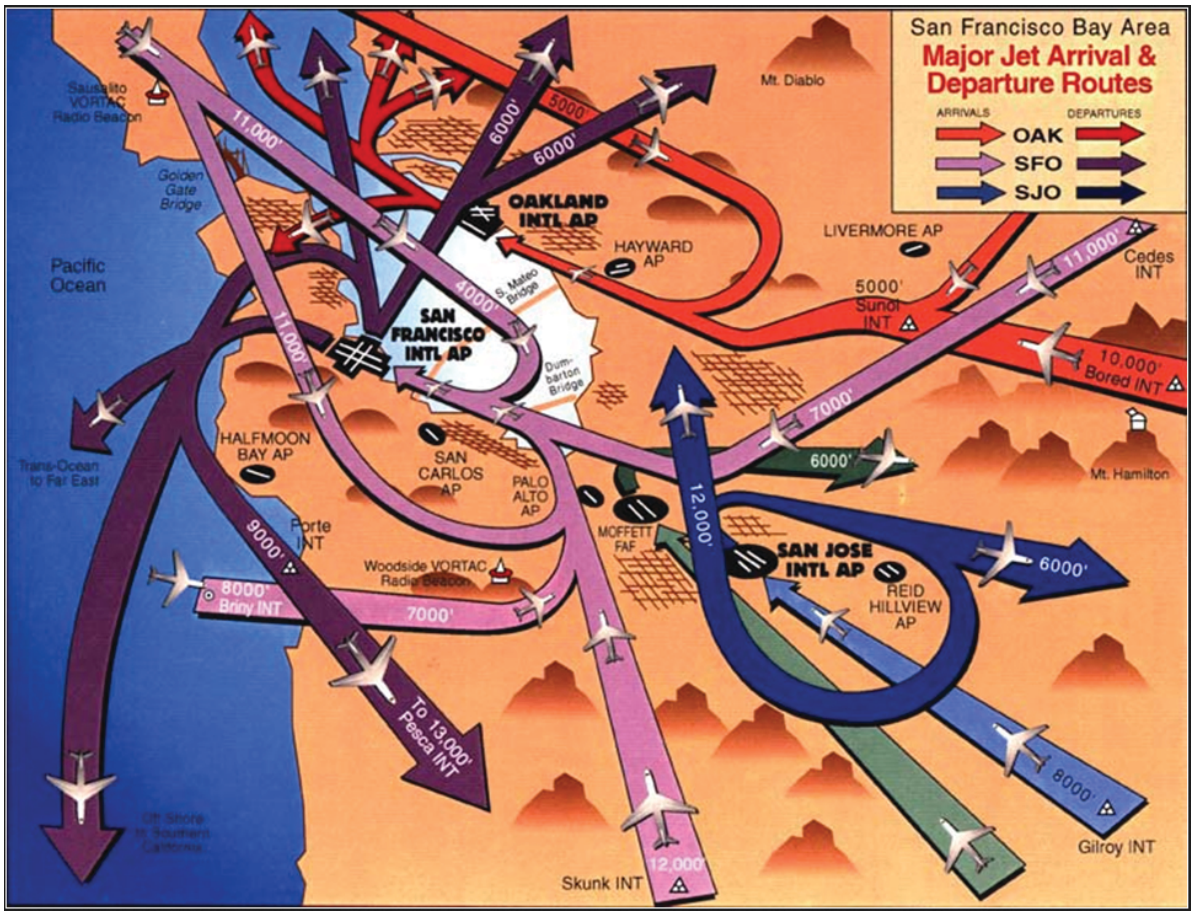
Figure 1 – Microphone and tripod on top floor rear exterior deck.

Figure 2 - Monitoring Location #982 (red circle - 2 mile radius) and Permanent Noise Monitor Sites (blue circles)



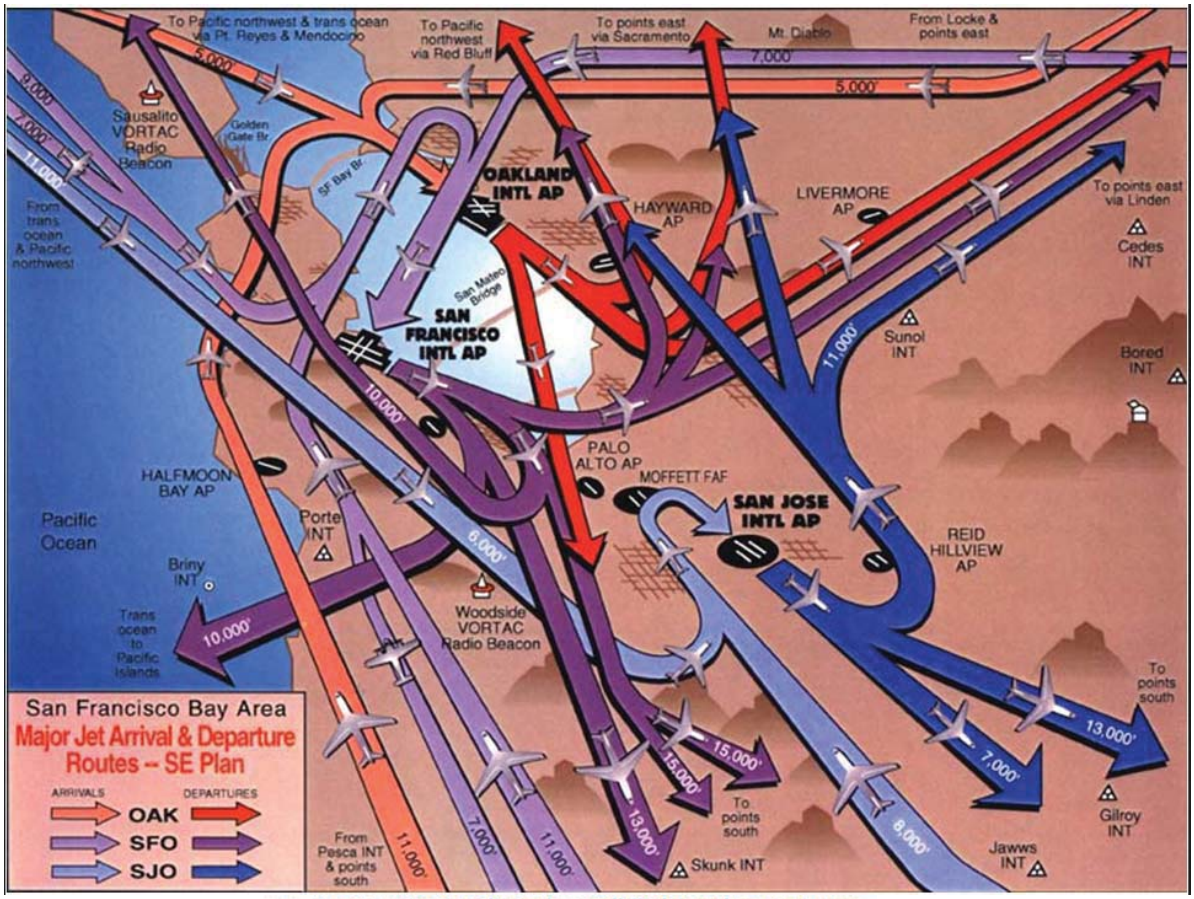
Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

West Flow Plan



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

Southeast Flow Plan



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

Appendix 2 – Noise Measurement Data Results

600 Block of Joost Ave, San Francisco
Date: 4-16-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A320	2	59.8	62.5			
A332	1	61.0				
B738	5	61.1	61.5	62.2	63.2	67.9
B739	3	60.4	60.5	60.8		
B772	1	63.0				
Total	**12**					

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
B712	1	57.4
B733	1	60.0
B737	1	57.1
C182	1	59.6
Total	**4**	

600 Block of Joost Ave, San Francisco
Date: 4-17-2017

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)									
A319	1	64.5									
A320	10	61.2	61.8	64.0	64.6	65.0	65.6	66.7	67.1	67.8	69.4
A332	1	61.3									
B712	1	77.9									
B733	3	60.7	61.0	62.0							
B737	4	60.0	60.4	61.7	63.9						
B738	6	57.8	60.2	61.6	61.9	64.5	64.6				
B739	7	59.8	60.7	61.1	61.9	62.0	62.6	66.0			
B744	1	61.3									
B752	1	61.1									
B753	1	61.6									
CRJ2	1	61.4									
CRJ7	1	60.9									
E170	1	61.0									
HELO	1	61.7									
Total	**40**										

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
A320	1	60.6
B737	1	63.4
C172	1	60.4
C182	1	69.2
PA34	1	67.7
Total	**5**	

600 Block of Joost Ave, San Francisco
Date: 4-18-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A320	5	59.7	60.3	60.8	61.0	61.1
A332	1	64.8				
B712	1	60.4				
B733	1	63.7				
B737	1	58.1				
B738	2	61.5	61.5			
E170	1	65.0				
Total	**12**					

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
B733	1	59.5		
B737	1	61.4		
C172	2	57.9	64.9	
C182	1	67.6		
CL30	1	63.6		
EC35	1	62.1		
HELO	3	64.4	69.8	69.7
SR22	1	65.5		
Total	**11**			

600 Block of Joost Ave, San Francisco
Date: 4-19-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)			
A320	2	62.9	69.1		
A332	1	63.9			
B733	2	60.9	64.5		
B734	1	59.4			
B737	1	57.4			
B738	1	60.3			
B739	1	60.8			
E170	4	61.3	60.9	61.9	66.2
Total	**13**				

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)			
B712	2	57.9	60.6		
B733	2	60.3	82.3		
B737	3	62.0	62.3	65.4	
B738	4	59.5	61.9	62.5	63.1
B763	2	62.3	67.7		
C172	2	56.7	60.6		
CL30	1	69.6			
HELO	1	69.3			
Total	**17**				

600 Block of Joost Ave, San Francisco
Date: 4-20-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)											
A319	1	61.6											
A320	8	61.3	61.5	62.1	62.3	62.5	63.4	66.1	66.9				
A321	2	67.2	69.9										
B712	3	59.9	61.9	63.8									
B733	4	62.0	64.0	64.5	67.0								
B737	1	63.2											
B738	12	61.8	61.8	62.0	62.2	62.7	63.0	63.2	63.3	63.8	63.9	65.4	66.0
B752	2	59.6	61.8										
CRJ2	1	60.7											
E170	6	61.0	61.7	61.7	61.8	62.3	63.5						
Total	**40**												

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
AS50	1	68.3		
B712	1	60.1		
B733	2	63.3	64.1	
B737	3	62.6	62.6	63.1
B738	1	65.1		
C172	3	57.4	62.6	71.3
C182	1	63.6		
HELO	1	62.9		
SR22	2	65.7	69.4	
Total	**15**			

600 Block of Joost Ave, San Francisco
Date: 4-21-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)						
A320	7	60.9	61.1	63.0	63.5	65.1	67.9	69.7
A321	1	62.2						
A332	2	62.2	71.2					
B733	1	67.1						
B737	1	61.6						
B738	2	62.3	65.6					
Total	**14**							

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)						
B737	7	58.0	60.4	61.5	61.7	62.8	65.5	67.1
B738	1	64.2						
B763	1	60.5						
C172	1	66.2						
MD83	1	62.7						
UNKNOWN	1	61.3						
Total	**12**							

600 Block of Joost Ave, San Francisco
Date: 4-22-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)						
A319	1	66.7						
A320	4	57.7	60.9	61.6	64.8			
A332	1	62.8						
A343	1	62.1						
A388	1	61.1						
B712	2	59.0	62.5					
B738	7	60.3	61.2	61.5	61.6	61.9	62.1	64.4
B739	5	60.3	60.3	63.1	65.7	66.3		
B744	5	65.8	66.3	67.0	67.4	69.4		
B748	1	64.5						
B753	1	68.3						
B762	1	61.2						
B77L	1	61.8						
B77W	1	59.9						
B788	2	61.3	62.4					
B789	1	60.9						
CRJ2	2	57.6	59.2					
CRJ7	1	59.2						
E170	3	58.7	61.2	62.0				
Total	**41**							

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A319	1	57.9				
A320	1	64.5				
B733	5	59.6	61.0	61.3	64.7	64.9
B737	5	60.5	60.9	61.2	61.6	62.5
B738	1	59.9				
BE36	1	60.2				
CRJ9	1	61.4				
F18	1	66.1				
LJ35	1	61.5				
SR22	1	62.2				
Total	**18**					

600 Block of Joost Ave, San Francisco
Date: 4-23-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)					
A320	5	60.3	60.8	63.8	64.3	65.9	
A321	2	59.5	63.0				
A332	1	70.8					
B733	2	61.4	64.2				
B737	1	63.9					
B738	3	59.2	61.1	65.1			
B739	6	59.8	61.0	62.7	63.9	67.6	69.0
B748	1	61.2					
CRJ2	1	64.6					
CRJ7	1	62.5					
E170	1	60.8					
Total	**24**						

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)			
A332	1	65.5			
B733	1	61.1			
B737	3	62.4	62.6	63.6	
B738	1	64.2			
BE36	2	63.8	63.8		
C172	1	64.9			
C182	1	69.6			
F2TH	1	67.3			
HELO	4	58.4	62.2	63.0	63.3
P28A	1	64.8			
Total	**16**				

600 Block of Joost Ave, San Francisco
Date: 4-24-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
A319	1	65.0	
A320	2	59.8	65.7
A332	1	69.6	
A343	1	71.7	
B734	1	67.5	
B738	1	63.3	
B752	1	59.8	
CRJ2	2	62.3	64.7
HELO	1	68.4	
Total	**11**		

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
A320	1	60.7		
B737	3	60.3	60.9	66.2
B738	3	64.2	65.5	66.0
C172	1	65.0		
Total	**8**			

600 Block of Joost Ave, San Francisco
Date: 4-25-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)					
A320	4	58.7	59.6	62.0	62.7		
A332	1	69.9					
B407	1	61.5					
B738	6	59.4	61.5	61.8	64.5	66.0	66.9
B739	1	63.3					
B762	1	59.8					
CRJ2	1	63.1					
E170	1	61.5					
Total	**16**						

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
A319	1	57.4	
B733	2	62.7	65.2
B737	1	60.2	
B738	2	60.3	63.4
R721	1	63.1	
Total	**7**		

600 Block of Joost Ave, San Francisco
Date: 4-26-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)
A332	1	65.3
B738	1	64.9
Total	**2**	

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)			
A320	1	68.3			
B763	1	61.2			
C172	2	60.5	62.8		
C208	4	60.3	60.9	61.4	68.3
HELO	3	60.0	64.8	73.9	
Total	**11**				

600 Block of Joost Ave, San Francisco
Date: 4-27-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
A320	1	63.9		
A332	2	60.5	68.6	
B733	1	62.0		
B737	1	61.1		
B739	1	65.9		
Total	**6**			

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
B733	2	61.0	64.8	
B737	3	60.6	61.3	62.8
B738	1	64.3		
Total	**6**			

600 Block of Joost Ave, San Francisco
Date: 4-28-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A319	1	63.1				
A320	2	61.1	63.7			
B734	1	66.1				
B738	2	63.5	67.6			
B739	2	65.0	65.4			
B77L	1	61.1				
UNKNOWN	1	65.6				
Total	**10**					

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A319	1	60.8				
B733	4	62.7	63.0	65.3	66.8	
B737	5	60.4	61.2	61.8	62.0	62.9
B738	1	64.9				
C172	3	61.5	64.4	65.5		
E55P	1	60.8				
G150	1	60.8				
HELO	1	61.2				
Total	**17**					

600 Block of Joost Ave, San Francisco
Date: 4-29-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
A320	2	60.2	62.2
A321	1	60.1	
A332	2	63.7	65.4
B733	1	66.7	
B737	1	59.9	
Total	**7**		

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
A319	1	64.0				
B712	1	59.0				
B738	1	63.6				
C172	5	60.2	61.2	61.4	61.9	62.2
MD11	1	70.6				
Total	**9**					

600 Block of Joost Ave, San Francisco
Date: 4-30-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)					
A320	2	57.5	63.5				
A321	1	59.2					
B733	2	61.4	66.5				
B737	1	61.7					
B738	6	59.8	60.9	60.9	61.6	64.5	65.5
B739	5	61.9	62.4	64.2	64.2	67.3	
B752	1	60.3					
Total	**18**						

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)		
A319	1	58.1		
A320	3	58.0	60.7	62.9
B712	1	61.4		
B733	2	61.8	63.8	
B737	1	61.2		
B763	1	65.8		
C172	1	62.7		
C208	1	61.3		
C650	1	64.4		
Total	**12**			

600 Block of Joost Ave, San Francisco
Date: 5-1-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Typ	Amount	Maximum Noise Level (dBA)													
A320	14	60.9	62.6	63.1	63.2	63.4	63.6	63.6	64.0	64.3	64.7	65.0	65.2	67.0	67.5
A321	1	60.1													
A332	2	68.6	68.7												
B712	1	62.4													
B733	3	62.2	62.5	64.5											
B737	2	63.3	66.1												
B738	9	62.7	62.8	62.8	63.5	64.0	64.1	65.0	65.5	68.2					
B739	8	62.3	62.6	63.2	64.2	64.2	64.9	66.7	67.4						
B752	2	60.3	64.8												
B753	1	62.2													
CRJ2	2	58.2	62.5												
CRJ7	1	62.1													
E170	3	60.3	61.2	62.6											
Total	**49**														

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Typ	Amount	Maximum Noise Level (dBA)		
A320	2	58.7	61.9	
AC69	3	60.7	65.2	73.4
B712	1	59.3		
B733	1	63.0		
B737	2	62.4	62.8	
B738	2	62.0	65.5	
C172	1	61.5		
C182	1	62.6		
DA40	1	62.4		
MD11	1	66.6		
SR22	3	61.9	62.1	63.1
Total	**18**			

Aircraft Type Reference Sheet

Wide Body Jet (Airplane fuselage is wide enough to accommodate two passenger aisles)		Narrow Body Jet (Airplane fuselage is wide enough to accommodate one passenger aisle)		Business Aircraft (Transportation for small groups of people)		General Aviation (Generally small, propeller-driven aircraft)		Helicopters (Aircraft operated by rotor blades)		Military (U.S. Military aircraft)	
A306	Airbus A300-600	A319	Airbus A319	AC50	North American Rockwell Commander 500	AA5	Grumman American AA-5	A139	Agusta Westland AW139	C130	Lockheed C-130 Hercules
A332	Airbus A330-200	A320	Airbus A320	B350	Beech 350 King Air	8KCAB	American Champion Decathlon	EC20	Eurocopter EC-120 Colibri	F18	McDonnell Douglas F/A-18 Hornet
A343	Airbus A340-300	A321	Airbus A321	BE20	Beechcraft 200 Super King Air	BE33	Beechcraft 35-B33 Debonair	EC45	Eurocopter EC-145	P3	Lockheed P-3 Orion
A346	Airbus A340-600	B733	Boeing 737-300	BE40	Beechcraft 400 Beechjet	BE35	Beechcraft 35 Bonanza	H60	Sikorsky MH-60 Black Hawk	T38	Northrop AT-38 Talon
A388	Airbus A380	B734	Boeing 737-400	BE9L	Beech 90 King Air	BE36	Beechcraft 36 Bonanza	HELO	Helicopter	V22	Bell Boeing V-22 Osprey
B744	Boeing 747-400	B735	Boeing 737-500	C210	Cessna 210 Centurion	BE55	Beechcraft 55 Baron	R22	Robinson R-22		
B748	Boeing 747-8	B737	Boeing 737-700	C25C	Cessna Citation CJ4	BE76	Beechcraft 76 Duchess	R44	Robinson R-44		
B762	Boeing 767-200	B738	Boeing 737-800	C421	Cessna 421 Golden Eagle	C140	Cessna 140				
B763	Boeing 767-300	B739	Boeing 737-900	C425	Cessna 425 Corsair/Conquest	C172	Cessna 172 Skyhawk				
B764	Boeing 767-400ER	B752	Boeing 757-200	C510	Cessna 510 Citation Mustang	C177	Cessna 177 Cardinal				
B772	Boeing 777-200	B753	Boeing 757-300	C525	Cessna 525 Citation CJ1	C180	Cessna 180				
B77W	Boeing 777-300ER	CRJ2	Bombardier CRJ-200	C560	Cessna 560 Citation 5	C182	Cessna 182 Skylane				
B788	Boeing 787-8	CRJ7	Bombardier CRJ-700	C56X	Cessna 560XL Citation Excel	C185	Cessna 185 Skywagon				
MD11	McDonnell Douglas MD-11	CRJ9	Bombardier CRJ-900	C680	Cessna 680 Citation Sovereign	C208	Cessna 208 Caravan				
		DH8D	Bombardier Dash 8 - Q400	C750	Cessna Citation X	C310	Cessna 310				
		E120	Embraer EMB 120 Brasilia	CL30	Bombardier Challenger 300	C337	Cessna 337 Super Skymaster				
		E170	Embraer EMB 170	E50P	Embraer EMB-500 Phenom 100	C340	Cessna 340				
		E45X	Embraer EMB 145XR	E55P	Embraer EMB-500 Phenom 300	CH7A	American Champion 7ECA Citabria Aurora				
		MD83	McDonnell Douglas MD-83	F2TH	Dassault Falcon 2000	COZY	Cozy MK IV				
		MD88	McDonnell Douglas MD-88	F900	Dassault Falcon 900	DA40	Diamond DA40 Diamond Star				
		MD90	McDonnell Douglas MD-90	FA7X	Dassault Falcon 7X	DA42	Diamond DA42 Twin Star				
				GALX	Dassault Falcon 900EX	LNC4	Lancair 4				
				GLF4	Gulfstream 4	M20	Aerostar				
				GLF5	Gulfstream 5	M20P	Mooney M-20				
				GL5T	Bombardier Global 5000	MU2	Mitsubishi MU-2				
				GLEX	Bombardier Global Express	P28A	Piper 28A Cheorkee				
				H25B	Hawker-Beechcraft Hawker 800/850	P28B	Piper 28B Cheorkee				
				HA4T	Hawker-Beechcraft Hawker 4000	P28R	Piper 28R Cheorkee				
				J328	Fairchild Dornier 328JET	P32R	Piper Saratoga				
				LJ30	Learjet 31A	PA24	Piper PA24 Comanche				
				LJ60	Learjet 60	PA32	Piper PA32 Cherokee Six				
				PC12	Pilatus PC-12 Eagle	PA44	Piper PA-44 Seminole				
				SW4	Fairchild Swearingen Metroliner	RV6	Vans RV-6				
				TBM7	Socata TBM-700	SR20	Cirrus SR-20				
				WW24	IAI 1124 Westwind	SR22	Cirrus SR-22				
						T182	Cessna T182 Turbo Skylane				

600 Block of Joost Avenue, San Francisco
Date: 4-16-2015 through 5-1-2016

All Aircraft Noise Events by Hour (SFO Aircraft & Non-SFO Aircraft)

Hour	4-16-2016	4-17-2016	4-18-2016	4-19-2016	4-20-2016	4-21-2016	4-22-2016	4-23-2016	4-24-2016	4-25-2016	4-26-2016	4-27-2016	4-28-2016	4-29-2016	4-30-2016	5-1-2016	Total
Midnight		2			1			3	2		1				1		10
1:00 a.m.		1								1						1	3
2:00 a.m.																	
3:00 a.m.			1														1
4:00 a.m.																	
5:00 a.m.				1													1
6:00 a.m.	2		3	4	3	3	9	3	3	3			3	2	7	3	48
7:00 a.m.		1	6	7	1	1	9	3	2	2	3	1	3	3	3	3	48
8:00 a.m.			1	5	3		3	1	1	1	1		3	1	2	1	23
9:00 a.m.	2	1	2	2	1	3	9	5		1		5	4	2	2	4	43
10:00 a.m.		2	2	1	1	3	6	3	5	3	1	2	3	5	2	4	43
11:00 a.m.	2	6	1		5	3		6	3	2		3	1		4	1	37
Noon		8	1	2	2	5	1	4	1	3			4	1	1	6	39
1:00 p.m.	2	1	1	1	3		1	2		1			3			3	18
2:00 p.m.	1	1	2	1	3		2		1				2			4	17
3:00 p.m.		4		2			2	1								3	12
4:00 p.m.				1	4	2	1	1			3					3	15
5:00 p.m.	1	1			6	1	1		1	1	4					2	18
6:00 p.m.	1	3		1	10	1	2	2		1		1				4	26
7:00 p.m.		3	1		6	1	2	3					1		1	8	26
8:00 p.m.		5			1		3	1							1		11
9:00 p.m.	2	3			1	2	3								1	7	19
10:00 p.m.	2	1		1	1	1	1			2			1		2	5	17
11:00 p.m.	1	2	2	1	3		4	3		2				2	3	4	27
Total	**16**	**45**	**23**	**30**	**55**	**26**	**59**	**41**	**19**	**23**	**13**	**12**	**28**	**16**	**30**	**66**	**502**

Dave Ong (AIR)

From: Dave Ong (AIR)
Sent: Monday, July 11, 2016 12:59 PM
To: 'reingras@gmail.com'
Cc: Takashima, David (MYR); 'jcastaneda@sforoundtable.org'; Bert Ganoung (AIR); John Bergener (AIR)
Subject: Short Term Aircraft Noise Monitoring Report for San Francisco and the Visitacion Valley Neighborhood
Attachments: Short Term Aircraft Noise Monitoring - San Francisco 7-11-2016.pdf; Supplement Aircraft Noise Terminology Metric.pdf

July 11, 2016

Mr. Reinhold Gras
1360 Geottingen Street
San Francisco, CA 94134

Dear Mr. Gras:

Thank you for allowing San Francisco International Airport (SFO) Noise Abatement Office the opportunity to collect aircraft noise measurements at your residence. Please find attached Short Term Aircraft Noise Monitoring report #072016-P51-983. This document contains the results of the monitoring performed covering Saturday, May 14 through Monday, May 30, 2016. Also attached is an Aircraft Noise Terminology & Metric Supplement to help explain some of the terms used in the report.

I have also copied Mr. David Takashima, City and County of San Francisco Mayor's Office Airport Community Roundtable Representative to share the results with.

SFO will strive to improve aircraft noise abatement procedures to further reduce aircraft noise in your community and are continually developing initiatives to mitigate the impacts of aircraft noise by working with the Airport Community Roundtable, the Federal Aviation Administration, and the airlines operating here at SFO.

As always, please feel free to call me at (650) 821-5100 if you have any questions or would like to discuss this information.

Sincerely,

David Ong SFO
Noise Systems Manager | Aircraft Noise Abatement Office
San Francisco International Airport | P.O. Box 8097 | San Francisco 94128
Tel 650-821-5100 | www.flysfo.com | www.flyquietsfo.com

Short Term Aircraft Noise Monitoring

San Francisco

Prepared for the Visitacion Valley Neighborhood
San Francisco International Airport Noise Abatement Office
P.O. Box 8097 San Francisco, CA 94128
(650) 821-5100
Technical Report #072016-P51-983

May 2016

Executive Summary

The San Francisco International Airport (SFO) Noise Abatement Office conducted short term noise monitoring in San Francisco, to determine the noise level within the Visitacion Valley neighborhood from aircraft operations at SFO. This monitoring location was selected as it is near a departure corridor and at the request and assistance of the San Francisco residents. The overall average daily noise level from all aircraft was only 51dBA CNEL. The Community daily noise level was 53dBA CNEL. Noise from all aircraft over this location increased the total average daily noise level by 1.5dBA.

Introduction

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

Aircraft Noise Analysis

Noise measurements were taken on the 1300 block of Goettingen Street starting May 13, 2016 to May 31, 2016 using a sound level threshold of 55dBA. This report evaluates periods where full 24 hour days of data are available, from May 14 through May 30. For this 17 day period, there were no incomplete days. There were 2,410 identified correlated aircraft noise events associated with SFO operations (SFO Events) and 732 identified correlated aircraft noise events associated with other Bay Area airports (Non-SFO Events) over the evaluation period. For the 3,142 aircraft noise events, the average aircraft generated Maximum Noise Level (Lmax) was 63dBA, the average Sound Exposure Level (SEL) was 73dBA, and the average aircraft noise event duration was 29 seconds. Table 1 below lists the aircraft totals along with community noise event totals, that were detected by the noise monitor arranged by date with the events' daily energy averages.

Table 1 - Noise Events by Date

		Average			Average			Average	
Date	SFO Events[1]	SEL[2]	Lmax[3]	Non-SFO Events	SEL	Lmax	Community Events	SEL	Lmax
05/14/2016	140	75	65	32	71	60	45	71	63
05/15/2016	87	77	67	53	73	63	74	73	62
05/16/2016	180	75	65	49	72	62	30	70	61
05/17/2016	144	74	64	44	73	61	128	75	62
05/18/2016	202	75	65	47	72	61	106	70	58
05/19/2016	16	78	70	22	71	66	75	69	61
05/20/2016	8	71	62	42	72	62	25	84	76
05/21/2016	154	76	66	34	73	63	20	73	65
05/22/2016	167	77	66	42	72	62	11	68	61
05/23/2016	171	76	66	58	72	62	23	71	62
05/24/2016	173	75	65	50	71	61	51	69	61
05/25/2016	103	75	64	47	71	60	45	70	61
05/26/2016	196	76	66	35	72	62	44	70	62
05/27/2016	192	76	66	56	73	61	82	70	60
05/28/2016	153	77	66	36	72	62	150	69	59
05/29/2016	162	77	67	31	73	63	5	73	65
05/30/2016	162	77	66	54	71	60	172	71	60
Total	**2,410**			**732**			**1,086**		

[1]SFO Events are Single SFO Aircraft, Multiple SFO Aircraft and Simultaneous SFO and Non-SFO Aircraft

[2]SEL (Sound Exposure Level) are in decibels (dB) A-weighted

[3]Lmax (Maximum Noise Level) are in decibels (dB) A-weighted

For Thursday, May 19 and Friday May 20 there were significantly less SFO Events detected at the measurement location due to SFO Aircraft using the west facing runways to depart versus taking off on the typical north facing runways (01L and 01R). This condition occurs when the westerly wind exceed 25 knots (29 miles per hour). These runways facing the San Francisco Bay are not available for departing traffic due to safety. All aircraft regardless of aircraft size or weight will use runways 28L and 28R to depart into the wind. Some will continue straight out toward the Pacific Ocean before turning north or south, while those headed east may turn right immediately after take-off over South San Francisco's industrial park, then toward the San Francisco Bay.

Table 2 below provides the resulting CNELs for this measurement period. The computed levels for the average **Aircraft CNEL** was 51dBA, the average **Community CNEL** was 53dBA, and the **Total CNEL** was 56dBA. For comparison purposes, the computed average aircraft noise level at permanent noise monitor #23 (300 block of Lathrop Avenue) located approximately 1/3 of a mile south was 52dBA for the same period.

Table 2 – Community Noise Equivalent Level over 17 Days

Community Noise Equivalent Level (CNEL)	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft (All)	44	54	51
Community	49	59	53
Total	54	60	56

Tables 3, 4, and 5 provides details of SFO Events by Daytime, Evening and Nighttime hours.

Table 3 - SFO Aircraft Noise Data (Single Events) – Day (7:00 a.m. to 7:00 p.m.)

1,773 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	55	79	64
Aircraft SEL	62	88	74
Noise Event Duration (in seconds)	8	120	31

Table 4 - SFO Aircraft Noise Data (Single Events) – Evening (7:00 p.m. to 10:00 p.m.)

320 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	55	71	63
Aircraft SEL	62	81	73
Noise Event Duration (in seconds)	8	120	31

Table 5 - SFO Aircraft Noise Data (Single Events) – Night (10:00 p.m. to 7:00 a.m.)

317 Correlated Noise Events	Lowest Level (dBA)	Highest Level (dBA)	Average Level (dBA)
Aircraft Lmax	55	74	63
Aircraft SEL	63	82	73
Noise Event Duration (in seconds)	8	120	29

All aircraft overflights, which flew within a cylindrical airspace of 2 miles in radius and 15,000 feet in height; centered on the measurement location were evaluated for this measurement period. A daily average of 276 overflights penetrated this airspace. An average of 67% (or 185 noise events per day) exceeded the threshold used to detect aircraft noise and registered events on the noise monitor. Table 6 below details the amount of daily overflights versus aircraft noise events. Appendix 2 lists these events by Aircraft Type and their Maximum Noise Level.

Table 6 - Aircraft Overflights versus Noise Events

Date	Amount of PCA Overflights[3]	Amount of Aircraft Noise Events[4]	Aircraft CNEL (dBA)	Range (dBA)		Flow Pattern[8]
				Lmax[6]	SEL[7]	
05/14/2016[1]	252	172	51	55-72	62-81	West
05/15/2016	215	140	50	55-79	64-88	West
05/16/2016	334	229	52	56-72	64-82	West
05/17/2016	299	188	53	56-73	63-82	West
05/18/2016	344	249	52	55-74	64-82	West
05/19/2016	149	38	44	56-78	64-85	SL Ops[9] & West
05/20/2016	92	50	45	56-70	63-78	SL Ops & West
05/21/2016	242	188	51	56-73	63-84	West
05/22/2016	301	209	54	57-75	64-86	West
05/23/2016	309	229	53	55-77	63-85	West
05/24/2016	298	223	52	55-72	62-82	West
05/25/2016	244	150	51	55-73	64-82	SL Ops & West
05/26/2016	345	231	53	56-77	64-86	West
05/27/2016	355	248	53	55-73	65-83	West
05/28/2016	289	189	52	55-73	64-82	West
05/29/2016	286	193	52	56-75	64-84	West
05/30/2016[2]	341	216	53	55-76	63-86	West
Total	4,695	3,142				
Average	**276**	**185**	**52[5] dBA**			

[1]5/14/16 first Aircraft Noise Event was measured at 12:06 a.m. for this survey

[2]5/30/16 last Aircraft Noise Event was measured at 11:55 p.m. for this survey

[3]The Amount of PCA Overflights through a defined cylindrical airspace for a 24-hour period starting at midnight to 11:59:59 p.m. The cylindrical airspace is two miles in radius and 15,000 feet in elevation, centered on the monitor's location

[4]Aircraft Noise Events include all SFO Aircraft, Multiple SFO Aircraft, Non-SFO Aircraft, and Simultaneous SFO & Non-SFO Aircraft

[5]This value is an energy average

[6]Lmax - The maximum noise level is a measurement of the peak level of a noise event

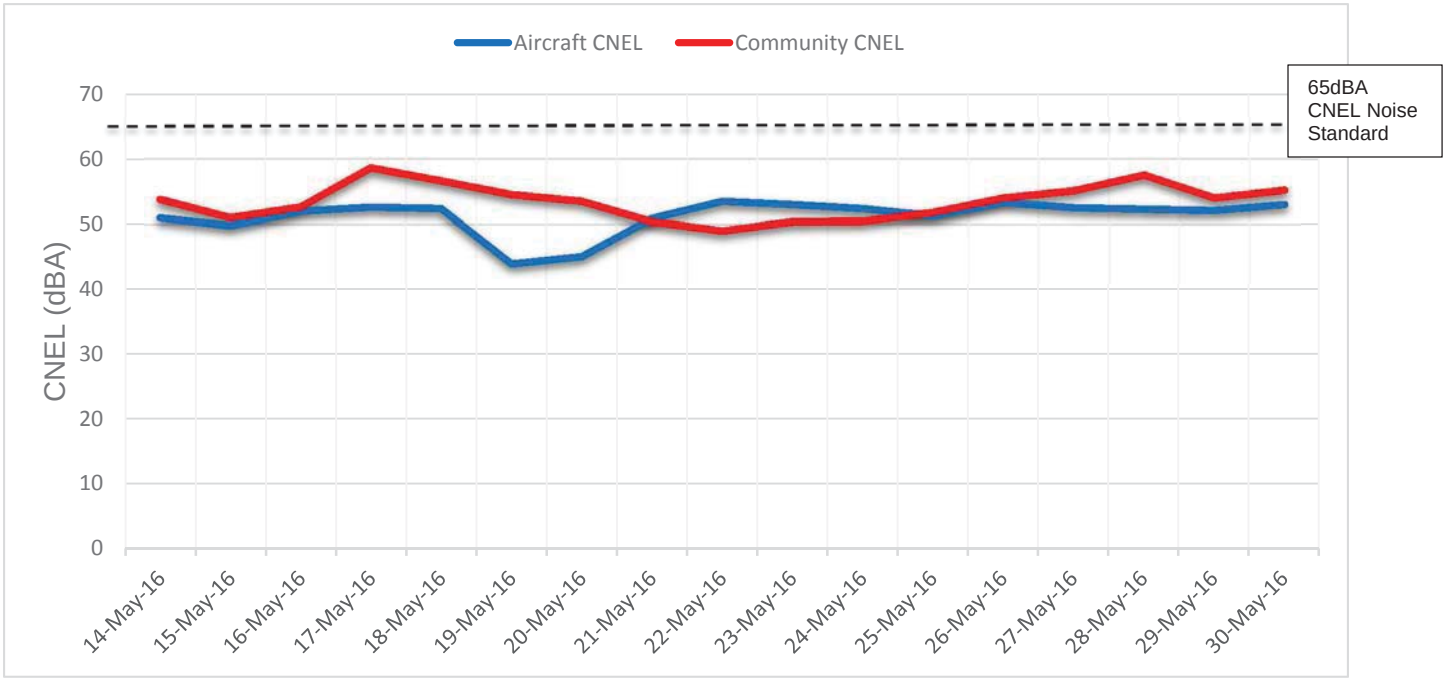
[7]SEL - Sound Exposure Level of a noise event is measured over time between the initial and final points when the noise level exceeds a predetermined threshold and it's energy is compressed into one second.

[8]Flow Pattern is the general flight pattern used by arriving and departing aircraft based on wind speed and direction. See Appendix 1 for San Francisco Bay Area Major Jet Arrival and Departure patterns. West = West Flow, SE = Southeast Flow

[9]SL Ops (Shoreline Departure Operations) - Off of Runways 28L/R occurs when strong crosswind component prevents aircraft from safely departing off the north facing runways (01L/R)

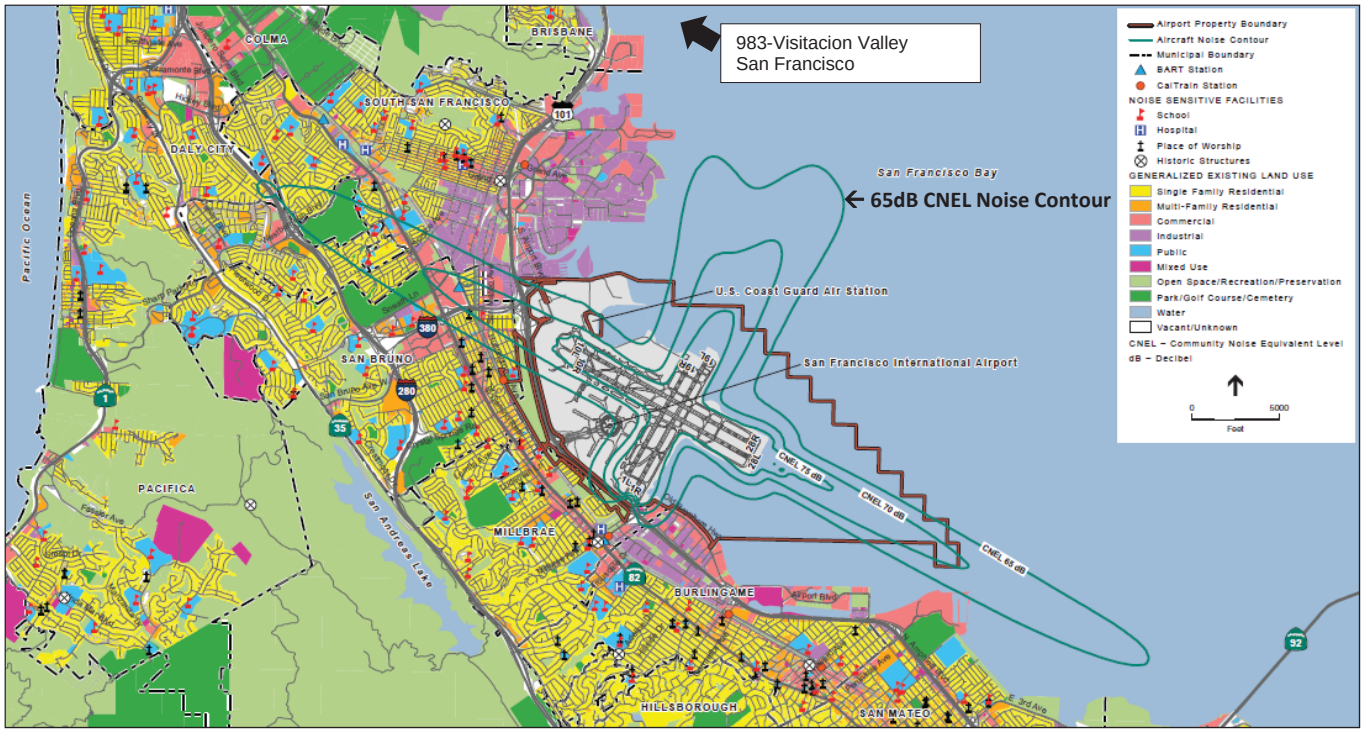
Conclusion

Aircraft noise levels were measured in the Visitacion Valley neighborhood of San Francisco. The community is approximately 7 miles away from San Francisco International Airport (SFO), and 10 miles away from Oakland International Airport (OAK). The Visitacion Valley neighborhood is located below several departure corridors serving four main commercial use runways (28L, 28R, 1L, 1R) at SFO and one main commercial use runway at OAK (30). Aircraft typically above San Francisco consists of mostly departures from both SFO and OAK and arrivals via Point Reyes to SFO. Aircraft noise measurements contribute 1.5dBA additional noise to the total cumulative average noise level of 56dBA CNEL. The average Aircraft CNEL was 51dBA and the average Community CNEL was 53dBA. When Aircraft noise is added to the Community noise the Total CNEL increases by 1.5dBA.



The California Code of Federal Regulations, Title 21, Division 2.5, Chapter 6, paragraph 5012 states, "The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels." Since the average Aircraft CNEL was measured at 51dBA for the Visitacion Valley neighborhood, this residential area has an acceptable level of aircraft noise as defined by state law. The extent of the 65dBA CNEL noise impact contour at SFO is shown on page 5. This noise contour was generated using Federal Aviation Administration's Integrated Noise Model (version 7.0d). The Federal Aviation Administration accepted this map as part of the Noise Exposure Map update under Federal Aviation Regulations Part 150 on January 29, 2016. The results of the field monitoring validates the extent of the 65dBA CNEL noise impact boundary confirming Aircraft CNEL is less than 65dBA CNEL for this location.

2014 Noise Exposure Map



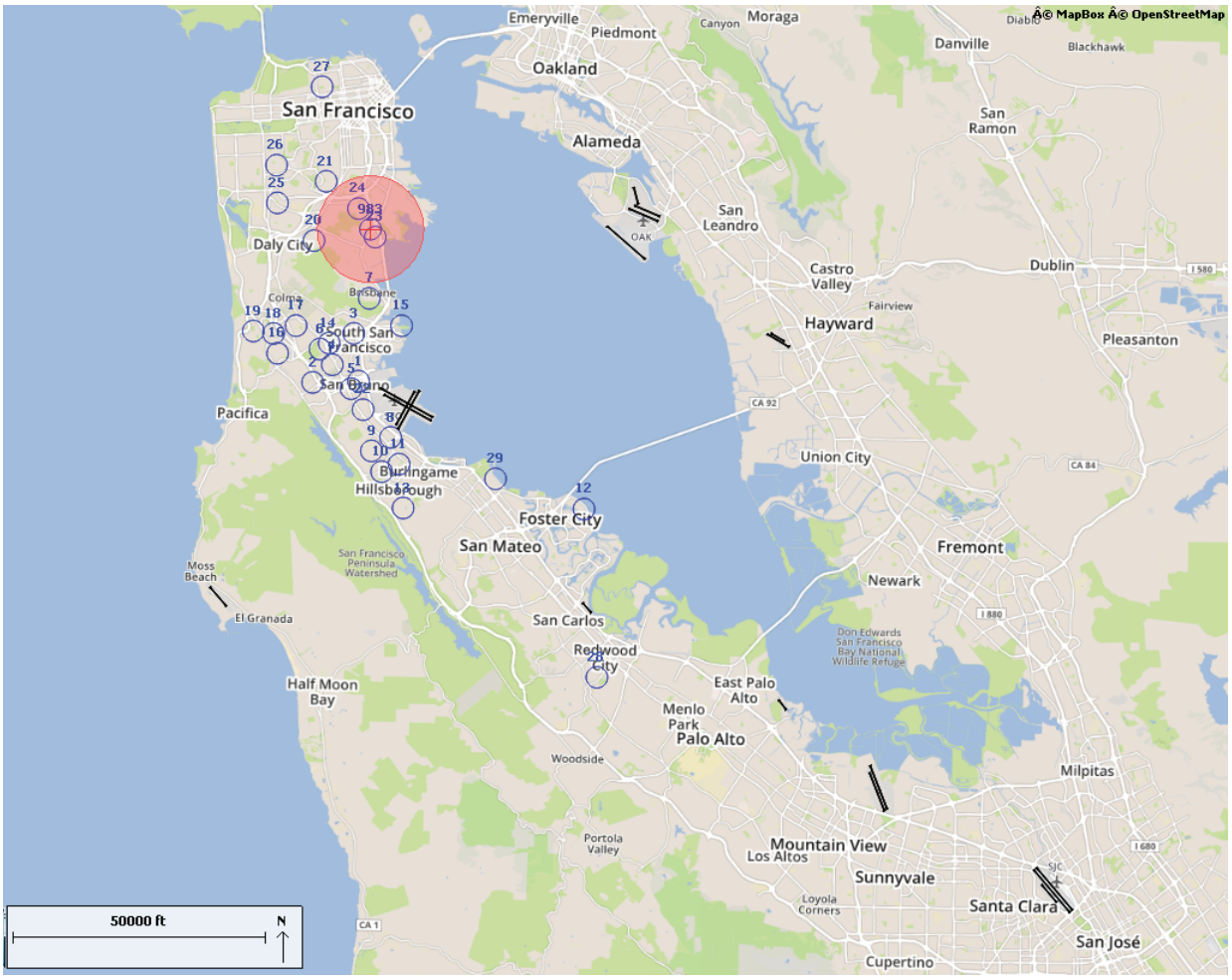
SOURCE: ESRI, 2014; San Mateo County Planning and Building Department, 2014; ESA Airports, 2014

SFO FAR Part 150 Noise Exposure Map Report . 120832

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

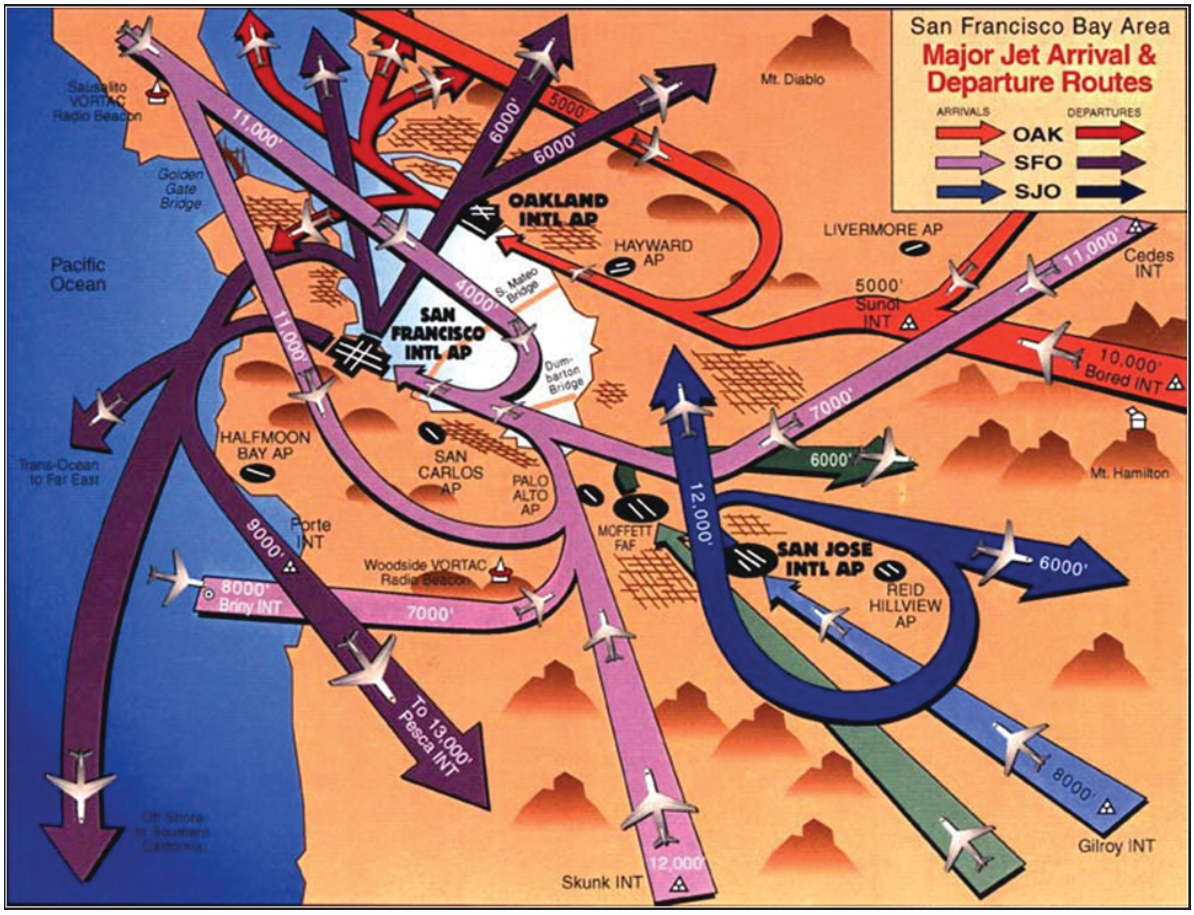
Figure 1 – Microphone and tripod in backyard behind rear exterior deck.

Figure 2 - Monitoring Location #983 (red circle – 2-mile radius) and Permanent Noise Monitor Sites (blue circles)



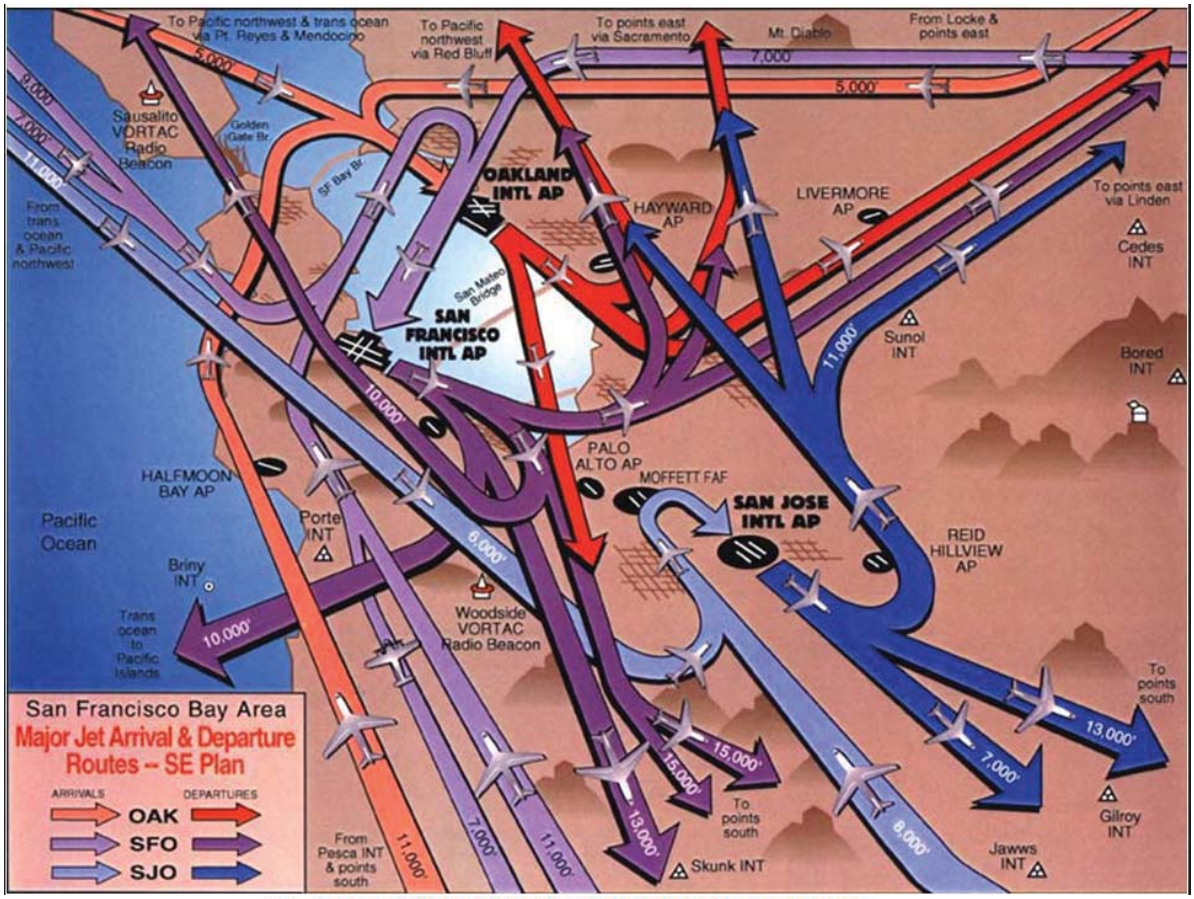
Appendix 1 – San Francisco Bay Area Major Jet Arrival and Departure Routes

West Flow Plan



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

Southeast Flow Plan



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

Appendix 2 – Noise Measurement Data Results

1300 Block of Geottingen St., San Francisco
Date: 5-14-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	8	59.3	61.1	63.7	64.0	64.5	65.2	67.3	67.4							
A320	28	56.7	58.2	58.7	60.4	60.7	61.2	62.2	63.2	63.2	63.2	63.5	63.7	63.8	64.4	64.5
		64.9	65.1	65.3	65.8	65.9	66.0	66.4	67.4	67.5	67.6	67.9	68.6	68.9		
A321	4	58.5	63.2	65.6	68.6											
A332	3	57.0	60.9	70.0												
B712	4	64.3	65.2	65.3	65.7											
B733	12	56.0	62.5	62.8	63.8	64.3	64.8	66.4	68.6	68.8	69.1	69.5	70.3			
B734	1	64.4														
B737	12	58.3	60.1	61.6	61.9	62.2	62.3	62.3	63.9	64.0	65.2	65.9	67.9			
B738	16	59.7	60.0	60.4	61.0	62.9	63.2	63.4	63.5	63.9	64.9	66.6	67.3	67.9	68.7	69.8
		70.8														
B739	11	58.5	59.5	63.3	63.4	64.5	64.8	67.7	67.7	67.7	69.9	72.0				
B744	1	58.8														
B752	1	62.3														
CL35	1	62.0														
CRJ2	15	55.4	56.8	56.8	57.5	58.1	58.6	58.9	59.2	59.4	59.7	59.9	60.4	60.6	60.9	63.0
CRJ7	2	61.5	63.4													
E170	18	56.5	56.7	56.9	57.1	59.6	62.0	63.3	63.6	64.1	64.1	64.6	65.4	66.4	67.1	67.4
		69.4	69.5													
Helo	3	56.3	58.1	58.7												
Total	**140**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)												
A319	2	58.8	62.6											
A320	4	55.5	58.4	59.9	61.6									
B712	1	58.3												
B733	2	63.4	63.8											
B737	13	56.1	56.7	56.9	57.6	58.4	58.8	59.0	59.6	59.7	60.2	61.0	61.0	62.5
B738	2	56.7	58.2											
C172	3	59.3	59.7	62.7										
C208	1	59.2												
C560	1	58.6												
CRJ7	1	60.6												
P28A	2	57.3	63.0											
Total	**32**													

1300 Block of Geottingen St., San Francisco
Date: 5-15-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)												
A319	3	64.6	67.3	68.1										
A320	13	61.8	63.8	64.0	65.8	66.1	66.2	66.2	66.5	67.0	67.2	67.3	68.8	71.5
A321	7	57.9	59.7	60.7	62.1	68.8	70.4	71.8						
A332	1	74.4												
B712	3	58.2	64.9	67.1										
B733	3	60.2	64.8	71.1										
B737	6	61.1	61.2	61.3	62.6	63.7	65.3							
B738	12	57.4	61.4	61.9	62.1	62.9	65.0	65.7	65.8	67.5	68.1	68.4	69.5	
B739	5	55.7	65.4	68.1	68.9	69.1								
B744	1	67.9												
B752	4	58.1	59.1	61.4	64.5									
B789	1	57.7												
BE20	1	62.9												
CRJ2	4	57.5	58.6	59.9	60.4									
CRJ7	2	57.0	62.2											
E170	11	57.2	58.2	61.2	61.6	63.0	64.3	65.0	66.5	67.0	68.4	69.1		
EC35	3	59.1	59.4	62.9										
HELO	7	58.3	58.9	60.9	61.0	65.9	69.3	79.4						
Total	**87**													

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	2	58.6	60.6													
A320	2	58.5	63.0													
B712	3	55.8	58.7	60.1												
B733	10	62.4	63.1	63.1	63.5	63.6	64.3	64.7	64.7	65.0	66.9					
B737	22	55.4	56.8	57.4	57.8	57.9	58.2	58.3	59.1	59.2	60.0	60.2	60.3	60.4	60.6	60.8
		31.1	61.3	61.3	61.4	61.5	62.3	63.8								
B738	4	57.3	58.4	58.7	67.0											
B763	1	63.5														
C172	3	57.4	61.2	66.5												
HELO	3	68.1	71.3	72.3												
L29B	1	65.9														
M20P	1	59.9														
PA28	1	59.1														
Total	**53**															

1300 Block of Geottingen St., San Francisco
Date: 5-16-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	9	55.5	58.8	59.5	64.8	65.1	67.1	67.2	68.5	68.6						
A320	37	57.3	57.7	58.5	58.7	58.9	59.3	59.5	59.5	59.9	60.8	61.4	61.6	61.7	62.1	62.4
			62.5	62.7	63.4	63.8	64.1	64.2	64.3	64.4	64.7	65.1	65.2	65.3	65.7	66.6
			67.0	68.1	68.4	69.0	69.4	70.3	70.5							
A321	8	60.1	61.7	62.0	63.2	65.6	66.0	67.7	68.6							
A332	2	71.5	71.7													
B712	8	60.6	60.8	61.5	62.0	62.6	63.1	63.7	64.0							
B733	18	58.4	59.0	59.3	60.2	60.7	61.0	61.7	62.1	62.3	63.6	64.3	65.3	65.8	66.5	67.4
		64.7	67.4	68.0												
B737	13	57.4	60.1	60.3	61.5	61.8	62.3	62.6	64.9	65.4	65.6	66.1	69.7			
B738	25	55.5	57.0	57.1	57.2	57.5	59.4	59.5	60.5	60.9	61.9	62.1	63.5	64.7	65.0	67.1
		67.2	67.7	67.8	68.3	69.5	69.8	69.9	70.5							
B739	17	59.1	60.5	60.9	61.9	62.5	63.2	64.0	64.2	64.4	65.1	65.6	66.4	66.4	66.9	69.1
		70.2	71.0													
B752	1	60.0														
B762	1	58.1														
B763	1	59.9														
B788	1	57.6														
C172	2	63.4	64.3													
C525	1	58.1														
CRJ2	10	57.3	57.5	58.5	58.7	59.0	59.4	60.6	61.4	65.1						
CRJ7	5	57.1	58.8	59.5	61.6	62.1										
E170	15	59.4	60.3	60.9	61.7	62.6	62.7	62.8	64.7	65.3	66.2	67.3	67.8	68.0	68.5	70.0
EC35	1	59.0														
GLF4	1	58.3														
HELO	4	57.2	60.6	61.9	62.4											
Total	**180**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	2	61.7	63.7													
A320	5	58.4	61.1	61.6	62.5	63.4										
B733	4	61.7	62.3	62.7	63.8											
B737	25	56.9	58.2	58.3	58.7	59.2	59.2	59.6	59.7	59.9	60.4	60.5	60.5	60.8	60.8	61.0
		61.3	61.3	61.4	62.4	62.4	62.5	62.6	63.3	63.7	64.1					
B738	2	62.2	62.5													
C172	4	55.8	57.1	59.1	59.7											
CRJ9	2	56.7	60.6													
GLEX	1	61.6														
HELO	1	62.0														
MD11	1	67.7														
P28A	2	58.4	60.7													
Total	**49**															

1300 Block of Geottingen St., San Francisco
Date: 5-17-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	6	58.3	58.5	59.9	60.3	66.1	66.2									
A320	23	57.5	57.8	57.9	58.2	58.7	59.6	59.7	60.0	60.3	60.8	61.1	61.3	61.7	62.5	62.6
		62.7	64.7	65.8	65.8	66.1	66.6	66.8	69.2							
A321	6	59.6	61.3	64.2	66.4	67.9	70.1									
A332	2	57.8	68.2													
B712	10	57.3	57.9	59.0	59.2	60.4	61.4	61.4	62.2	63.3	63.5					
B733	14	57.5	57.7	58.3	59.1	59.7	59.9	63.4	64.6	64.7	65.0	65.5	66.1	66.7	68.4	
B734	1	72.6														
B737	9	58.7	59.2	61.1	61.4	61.6	61.9	63.0	63.1	64.2						
B738	19	57.1	57.5	58.5	59.9	60.7	61.4	61.6	62.0	62.2	62.5	63.0	63.0	63.8	64.2	65.5
		66.9	69.3	69.9	70.2											
B739	11	58.6	59.1	59.5	60.3	61.0	61.3	62.8	63.9	64.4	65.8					
B752	2	60.7	66.0													
B762	1	67.1														
B788	1	57.3														
BE20	2	58.9	67.7													
CRJ2	12	56.3	56.6	56.6	57.2	57.2	60.2	60.3	60.8	61.2	61.5	62.2	64.0			
CRJ7	5	56.9	57.3	57.6	60.0	60.6										
E170	12	55.5	57.4	61.0	62.3	62.5	62.7	62.8	63.9	64.0	64.1	64.6	68.1			
EC30	1	72.9														
EC35	1	59.2														
HELO	4	57.2	60.8	68.1	69.2											
P28B	1	64.2														
RV6	1	57.7														
Total	**144**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)												
A320	1	57.7												
B712	2	58.9	63.7											
B733	6	57.6	58.1	59.0	60.2	61.4	64.7							
B737	13	55.9	56.8	56.8	57.0	57.1	59.2	59.2	59.4	59.8	60.4	61.5	62.6	63.5
B738	2	58.6	64.3											
BE35	1	58.7												
C172	5	57.0	59.7	59.7	62.9	63.7								
C182	1	64.0												
C25A	1	56.1												
CH7A	1	60.3												
HELO	6	57.6	57.8	59.1	60.9	61.0	67.4							
MD11	1	56.0												
R44	1	64.0												
RV6	1	62.3												
SR22	2	57.3	60.0											
Total	**44**													

1300 Block of Geottingen St., San Francisco
Date: 5-18-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	8	55.1	60.9	61.3	61.7	62.9	66.9	67.6	68.3							
A320	36	56.8	58.1	58.3	58.4	58.8	59.1	59.2	59.5	59.8	60.8	60.8	61.1	61.3	61.4	61.5
		62.1	62.3	63.3	64.4	64.8	65.0	65.3	65.3	65.6	66.2	66.4	66.6	66.7	67.4	67.9
		68	68.2	69	69.2	69.4	71.6									
A321	5	59.4	63.3	64.3	66.9	67.7										
A332	2	66.8	67.6													
AS65	1	59.8														
B407	2	61.4	71.3													
B712	13	55.9	56.1	56.3	57.4	57.6	59.3	60.6	62.6	63.2	63.3	64.7	64.9	65.9		
B733	15	56.8	57.6	60.1	60.7	61.1	61.7	62.7	63.4	63.4	64.8	67.7	68.5	68.8	69.7	73.6
B734	2	56.5	61.6													
B737	24	55.6	56.9	57.0	57.2	57.9	58.9	59.2	59.6	59.7	59.7	61.1	61.2	61.3	61.4	61.7
		61.8	62.2	62.5	62.6	63.1	64.0	64.6	65.3	67.0						
B738	24	56.2	58.2	58.4	60.3	60.9	61.9	62.0	62.3	62.5	65.3	65.4	65.9	66.6	66.7	67.2
		67.4	67.4	68.0	68.7	69.2	69.2	69.3	69.5	72.1						
B739	13	57.8	58.2	58.7	61.3	63.0	64.2	64.3	64.5	66.4	66.6	67.9	68.1	68.5		
B752	2	61.2	63.6													
BE20	1	65.2														
CL35	1	64.8														
CRJ2	17	55.7	56.1	56.1	56.7	57.2	57.4	57.5	57.9	58.0	58.1	58.5	58.7	58.9	59.4	60.2
		60.6	61.2													
CRJ7	5	57.7	60.2	61.9	63.9											
E170	19	55.8	56.6	57.1	57.6	57.7	60.0	60.4	62.0	62.1	62.3	63.2	63.5	63.6	63.6	63.7
		64.9	66.1	66.2	73.4											
EC30	2	57.1	63.5													
EVSS	6	55.3	56.9	58.9	66.5	68.5	71.2									
HELO	3	58.8	68.7	72.8												
PAY2	1	58.0														
Total	**202**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	1	62.8														
A320	2	61.4	62.6													
B407	1	57.2														
B712	1	57.1														
B733	2	57.6	64.0													
B737	25	56.0	56.3	56.8	57.5	58.0	58.1	58.4	58.6	58.6	59.1	59.2	59.6	59.7	59.8	60.3
		60.8	61.0	61.3	61.4	61.8	61.8	62.2	62.5	63.8	64.5					
B738	1	59.5														
C172	4	57.5	57.6	63.2	64.8											
C182	1	59.9														
CRJ9	2	56.7	65.5													
E50P	1	55.9														
GLF5	1	59.1														
HELO	2	66.5	68.1													
P28	1	56.2														
SR22	2	58.0	58.8													
Total	**47**															

1300 Block of Geottingen St., San Francisco
Date: 5-19-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)				
B407	5	60.3	60.4	63.9	74.1	75.5
B427	1	77.3				
B739	1	60.3				
B744	1	62.9				
B763	1	58.7				
B77W	2	62.2	64.6			
E170	1	62.6				
HELO	4	60.6	62.2	63.9	69.0	
Total	**16**					

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)									
A320	5	56.4	56.5	56.9	57.2	57.4					
B712	1	62.4									
B733	2	60.3	60.7								
B737	10	56.4	57.3	58.1	59.8	61.1	64.1	65.6	68.0	68.3	77.5
HELO	4	61.9	62.5	63.5	65.5						
Total	**22**										

1300 Block of Geottingen St., San Francisco
Date: 5-20-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)	
B407	1	60.6	
B739	1	57.0	
B753	1	57.6	
B763	1	62.2	
B772	1	56.9	
HELO	2	59.0	68.8
MD11	1	59.6	
Total	**8**		

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A306	1	58.1														
A319	2	56.8	62.4													
A320	5	57.6	61.0	61.2	61.8	63.4										
B712	2	60.6	62.2													
B733	4	64.7	65.7	66.8	69.6											
B737	22	56.3	56.4	56.5	56.7	57.2	59.2	59.6	59.6	59.8	60.1	60.2	60.7	60.7	61.0	61.1
		61.2	61.2	61.3	61.5	61.5	61.6	62.3								
B738	2	61.6	65.1													
B763	1	57.6														
C172	1	57.6														
C560	1	60.8														
MD11	1	62.3														
Total	**42**															

1300 Block of Geottingen St., San Francisco
Date: 5-21-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	7	56.5	57.2	59.7	64.3	65.0	67.1	67.6								
A320	30	56.2	57.3	58.2	60.3	60.9	62.9	63.1	63.4	63.9	63.9	64.0	64.8	65.4	65.5	65.5
		66.4	66.5	67.3	67.8	67.9	68.2	68.4	68.7	69.2	69.2	69.4	69.6	69.7	72.7	73.0
A321	3	59.6	66.4	69.3												
A332	2	65.2	70.8													
A350	1	59.8														
B712	3	58.9	65.1	65.5												
B733	9	58.5	63.1	63.5	63.6	65.5	66.5	68.0	70.8	73.1						
B734	1	70.9														
B737	13	58.4	60.0	60.8	61.3	61.9	62.6	63.2	63.5	64.1	64.8	65.2	66.1	68.7		
B738	21	56.5	59.1	61.1	61.1	62.9	63.3	63.4	63.5	64.4	65.1	65.4	65.8	65.9	66.6	67.3
		67.4	67.7	68.5	68.7	70.6	70.9									
B739	14	56.5	57.5	59.3	59.3	59.7	61.8	62.7	63.6	66.5	67.8	68.4	70.7	71.6	73.2	
B752	2	61.2	63.6													
B763	1	60.3														
C525	1	57.2														
CRJ2	22	56.6	56.9	56.9	57.0	57.6	57.6	57.9	58.0	58.5	58.7	58.7	58.9	59.4	59.4	59.6
		59.9	60.0	60.4	61.2	61.5	61.6	61.8								
CRJ7	1	59.5														
E145	1	61.5														
E170	20	56.8	57.1	59.1	59.6	59.7	60.9	62.4	62.7	63.4	63.9	63.9	64.6	64.6	65.1	65.9
		66.0	66.9	67.1	67.2	68.4										
LJ60	1	59.7														
P28A	1	61.6														
Total	**154**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)										
A319	1	61.5										
A320	4	58.3	58.7	60.9	61.4							
A332	1	57.8										
B712	3	59.0	61.1	61.8								
B733	2	62.1	64.0									
B737	11	56.0	57.3	58.1	58.3	58.8	59.8	60.0	60.9	61.8	62.4	63.9
B738	2	59.7	61.9									
B763	1	69.4										
C208	1	61.3										
C525	1	60.7										
CRJ9	1	57.4										
HELO	3	59.8	66.5	68.1								
SR22	3	63.9	67.9	66.4								
Total	**34**											

1300 Block of Geottingen St., San Francisco
Date: 5-22-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	3	60.7	61.6	66.3												
A320	35	58.8	60.2	61.0	61.2	61.8	62.4	63.3	63.8	64.1	64.2	64.8	64.9	64.9	65.8	66.1
		66.3	66.9	67.1	67.1	67.3	67.5	67.6	67.6	68.0	68.6	68.7	69.1	69.3	69.7	69.7
		69.8	70.3	70.5	71.6	72.4										
A321	8	62.2	62.7	62.9	67.3	68.0	68.0	68.4	71.3							
A332	2	70.7	75.3													
B712	12	56.5	58.7	60.3	62.0	62.6	63.5	64.6	64.7	65.2	65.6	66.3	67.0			
B733	15	60.4	61.9	62.2	63.1	64.8	65.7	65.7	66.4	67.3	68.4	69.0	69.7	70.8	71.4	71.8
B734	1	74.1														
B737	14	56.5	59.8	61.0	62.2	62.6	62.6	63.9	64.4	64.8	64.8	65.0	65.6	65.7	65.8	
B738	24	56.7	58.1	58.3	60.4	62.0	62.3	62.5	62.8	62.9	63.1	64.3	64.5	64.5	64.7	65.9
		66.0	67.0	67.0	67.2	67.4	67.6	68.1	70.2	70.3						
B739	11	57.6	59.0	59.2	61.0	62.9	64.3	65.3	65.6	66.7	67.7	69.9				
B752	5	58.8	59.9	61.9	64.8	67.4										
B788	1	69.1														
CRJ2	14	57.8	57.9	57.9	58.2	59.4	59.8	60.1	60.2	60.2	60.4	60.5	62.2	62.6	62.9	
CRJ7	3	57.0	64.6	64.8												
E170	16	58.3	59.3	60.0	60.6	60.8	61.3	62.8	62.8	64.1	64.3	64.5	65.0	65.1	66.0	68.4
		69.0														
HELO	3	58.2	67.9	74.6												
P28A	1	62.2														
Total	**168**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	2	61.0	63.8													
A320	1	62.6														
A332	1	67.2														
B712	1	57.9														
B733	5	62.4	63.1	63.4	63.6	64.1										
B737	19	57.1	57.3	57.4	57.7	57.8	58.8	59.5	59.9	60.0	60.5	60.8	61.0	61.2	61.7	61.9
		62.2	62.8	65.7	66.0											
B738	5	58.5	60.7	62.4	63.9	64.6										
BE36	1	65.2														
C172	1	62.1														
CL30	1	57.2														
CRJ9	1	56.5														
P28A	2	56.8	62.5													
P28B	2	64.0	65.2													
Total	**42**															

1300 Block of Geottingen St., San Francisco
Date: 5-23-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	12	59.0	61.8	63.1	63.1	63.3	65.9	66.0	66.1	66.3	67.5	68.1	70.7			
A320	33	57.3	58.5	58.7	59.9	60.8	61.1	61.2	62.0	62.5	62.7	62.9	63.2	63.5	64.0	64.3
		64.9	65.0	65.2	65.3	65.6	66.1	66.4	67.6	67.7	67.7	67.9	68.1	68.1	68.5	68.8
		69.4	70.4	71.3												
A321	7	58.3	59.1	61.5	62.4	66.1	69.1	70.8								
A332	1	68.0														
B712	10	56.8	58.6	61.4	61.4	62.8	63.8	64.8	65.8	68.5	73.1					
B733	14	57.0	61.1	61.1	64.2	65.9	66.2	66.4	66.9	67.1	67.2	68.3	68.5	68.7	70.4	
B737	18	56.1	58.8	59.1	60.6	60.9	62.5	62.8	63.3	64.6	65.0	65.2	66.4	67.1	67.4	67.5
		68.1	68.7	69.6												
B738	25	57.9	58.5	58.5	58.6	59.0	59.1	59.4	60.6	60.7	62.1	62.3	63.1	63.7	64.5	66.1
		66.5	67.3	67.8	68.0	68.9	69.7	69.9	70.0	70.9	72.4					
B739	7	56.7	57.5	65.4	67.6	67.9	68.8	69.0								
B744	1	62.6														
B752	2	61.6	64.7													
B753	1	56.6														
B772	1	71.4														
CRJ2	14	56.5	56.8	57.2	58.1	58.2	58.5	58.9	59.4	59.5	60.1	61.3	61.4	61.9	77.3	
CRJ7	6	60.5	60.5	63.3	63.3	64.0	64.4									
E170	15	55.0	55.6	58.2	59.8	60.2	60.4	63.0	63.5	64.0	64.5	64.7	65.1	66.5	70.0	70.2
GLF5	1	57.6														
HELO	2	59.8	62.4													
Total	**170**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A306	1	56.4														
A320	6	57.7	58.5	59.6	60.5	62.1	62.2									
B712	2	57.7	61.9													
B733	7	61.1	61.4	63.5	64.3	65.6	66.4	66.5								
B737	29	57.4	57.7	58.0	58.1	58.2	58.2	59.2	59.3	59.4	59.5	59.9	60.1	60.1	60.4	60.8
		60.9	61.3	61.3	61.3	61.5	62.4	63.3	63.3	63.4	63.8	64.5	64.9	65.5	67.3	
B738	3	59.6	62.3	66.7												
B763	1	63.4														
C172	2	64.3	61.3													
C25B	1	56.6														
F2TH	1	58.7														
FA50	1	61.5														
HELO	1	60.3														
P28A	1	58.4														
P46T	2	64.3	65.7													
Total	**58**															

1300 Block of Geottingen St., San Francisco
Date: 5-24-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	11	56.7	59.3	61.1	61.8	62.3	62.8	63.0	63.2	65.3	66.0	67.8				
A320	36	55.8	57.9	58.9	59.1	59.6	59.7	60.1	60.3	60.3	60.4	61.2	61.3	62.0	62.5	62.8
		63.2	63.4	63.4	64.1	64.8	64.8	65.3	65.7	66.4	66.4	66.4	66.5	66.8	66.9	67.0
		67.6	67.8	68.9	69.9	70.4	71.8									
A321	5	62.7	64.1	66.6	66.7	68.7										
A332	3	60.1	67.1	68.7												
B712	7	56.6	60.3	61.3	61.6	63.3	63.7	64.2								
B733	14	58.9	61.1	61.6	62.3	63.2	63.7	64.2	65.1	66.2	66.5	69.4	70.1	70.2	70.4	
B737	17	55.1	57.1	57.5	58.3	59.0	59.5	59.5	61.2	61.6	62.4	62.8	62.8	63.9	64.3	64.6
		66.7	66.7													
B738	24	55.4	60.3	60.3	60.6	61.0	62.6	64.5	64.8	64.9	65.3	65.4	65.6	65.7	66.0	66.1
		66.1	66.1	66.5	67.4	68.3	68.5	68.8	68.9	70.6						
B739	9	57.8	59.4	60.3	60.8	66.5	68.1	69.7	71.5	72.0						
B752	2	57.5	68.6													
B753	3	56.1	58.1	65.8												
B788	1	64.9														
BE40	1	64.9														
CL30	1	66.1														
CRJ2	18	55.6	56.1	56.2	56.8	57.6	57.9	58.0	58.2	58.6	59.0	59.1	59.1	60.2	60.4	60.5
		60.5	61.3	63.6												
CRJ7	5	57.4	58.8	58.8	60.7	63.1										
E170	17	58.8	60.1	60.7	60.7	60.8	62.4	62.5	63.4	64.0	64.8	64.8	65.1	65.2	65.7	66.3
		68.3	68.6													
Total	**174**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	1	62.0														
A320	3	62.2	62.4	62.5												
B712	3	55.4	58.3	59.1												
B733	7	56.2	60.1	60.7	63.2	63.3	64.1	64.4								
B734	1	62.9														
B737	27	57.1	57.2	57.7	57.8	58.1	58.5	59.1	59.1	59.9	59.9	60.0	60.2	60.2	60.3	60.5
		60.5	60.9	60.9	60.9	60.9	61.0	61.2	62.0	62.0	64.8	66.0	66.1			
B738	3	56.8	57.3	58.0												
B752	2	59.8	60.6													
C680	1	56.0														
CL30	1	59.7														
GLF4	1	57.5														
Total	**50**															

1300 Block of Geottingen St., San Francisco
Date: 5-25-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	5	58.2	58.3	60.7	63.0	67.2										
A320	20	57.5	57.9	58.2	58.3	60.5	60.7	61.0	62.4	62.4	63.6	63.8	63.8	64.7	65.5	65.5
		66.0	66.5	67.3	69.7	72.8										
A321	2	61.4	67.2													
A332	1	68.6														
B712	4	57.4	59.0	62.8	65.2											
B733	9	60.0	60.5	61.5	62.0	62.5	63.3	64.2	64.8	66.7						
B737	8	59.0	61.4	62.2	62.9	63.6	64.0	65.3	66.7							
B738	15	55.9	59.3	60.1	60.3	62.6	64.3	64.4	65.1	65.2	65.3	65.7	66.1	68.4	69.1	69.4
B739	9	56.0	59.6	62.6	62.8	63.6	65.4	66.1	67.4	71.1						
B752	1	63.6														
B788	1	65.1														
B789	2	55.3	64.0													
C560	1	56.9														
CRJ2	8	57.0	58.3	58.8	59.3	59.4	59.5	62.7	62.7							
CRJ7	3	58.0	63.9	66.5												
E170	11	59.2	60.6	60.9	63.5	63.7	64.1	64.2	64.2	64.5	68.3	68.3				
HELO	2	59.7	60.9													
Total	**102**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	1	60.9														
A320	1	57.4														
B733	7	60.1	61.2	61.2	61.7	62.1	62.2	63.5								
B737	24	55.8	56.2	56.3	56.9	57.0	57.2	57.5	57.6	57.9	58.0	58.1	59.0	59.1	59.6	59.9
		60.1	60.1	60.5	60.7	61.3	61.6	62.1	62.2	64.2						
B738	4	60.2	61.2	64.5	64.7											
B739	1	61.9														
B763	2	57.5	59.3													
CRJ9	1	56.9														
F900	1	56.9														
H25B	2	56.4	59.5													
HELO	1	58.3														
LJ25	1	60.2														
MD83	1	59.6														
Total	**47**															

1300 Block of Geottingen St., San Francisco
Date: 5-26-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	9	56.3	61.5	63.2	65.5	65.9	66.5	66.6	67.0	67.8						
A320	34	57.5	58.7	59.3	61.8	62.0	62.1	62.3	63.0	63.0	63.9	63.9	64.2	64.7	64.8	65.0
		65.0	65.1	65.2	65.8	66.1	66.1	66.1	66.3	66.4	66.8	67.6	67.7	68.3	68.7	69.9
		70.5	71.4	71.7	71.8											
A321	10	57.3	59.0	59.3	61.8	64.1	64.3	67.2	67.3	70.0	71.8					
A332	2	58.8	76.5													
B407	1	74.3														
B712	12	57.5	60.2	61.4	62.4	62.5	62.6	63.0	63.6	64.9	66.4	66.7	69.5			
B733	9	57.7	59.6	62.1	64.7	65.2	66.8	67.2	71.3	71.6						
B737	24	56.7	57.3	57.5	57.5	57.9	58.5	58.6	58.9	60.2	60.9	61.3	62.5	63.3	64.7	65.3
		65.7	65.8	66.4	67.1	67.2	67.5	69.0	69.6	73.4						
B738	32	56.3	58.9	59.1	59.4	59.8	60.8	61.4	61.8	62.7	63.2	63.4	63.6	64.9	65.0	65.8
		66.4	67.0	67.3	67.3	68.0	68.1	68.7	68.7	70.2	70.7	71.4	71.5	71.8	71.9	72.1
		72.7	74.0													
B739	9	58.2	63.0	64.1	64.9	67.3	68.0	69.0	69.6	71.4						
B752	1	64.0														
B762	1	59.5														
C441	1	56.7														
C550	1	60.5														
CL30	1	58.7														
CRJ2	15	56.2	57.1	57.2	57.4	57.4	57.4	57.8	58.0	58.3	58.7	58.8	59.2	60.3	61.2	61.3
CRJ7	5	60.1	60.2	60.7	61.2	62.0										
E170	22	58.7	60.2	60.4	60.6	61.3	62.3	62.4	62.8	63.3	63.8	63.9	64.0	64.7	64.7	64.9
		66.0	66.1	67.6	68.2	69.1	70.2	71.0								
HELO	7	56.5	56.6	57.7	58.8	60.7	62.5	66.5								
Total	**196**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Noise Level (dBA)														
A319	1	57.5														
A320	2	58.1	61.8													
B712	2	57.8	61.3													
B733	4	56.3	58.5	59.4	62.7											
B737	15	56.5	57.1	57.7	57.7	58.3	58.4	58.6	59.2	59.5	59.7	60.2	60.3	60.8	61.4	62.1
BE20	1	58.0														
C172	2	58.8	60.1													
C25A	1	57.8														
HELO	1	74.4														
MD11	1	58.7														
PA46	1	62.6														
R44	4	59.2	60.6	60.9	62.3											
Total	**35**															

1300 Block of Geottingen St., San Francisco
Date: 5-27-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	11	59.1	59.9	60.7	64.5	64.7	64.7	66.5	66.7	67.6	68.1	69.6				
A320	36	56.3	56.7	59.0	62.3	62.7	63.0	63.3	63.5	63.6	63.7	63.8	64.0	65.1	65.7	65.9
		65.9	66.5	66.7	66.7	66.8	66.9	67.0	67.1	67.2	67.3	67.6	67.9	68.2	68.4	69.3
		69.3	69.7	70.2	70.2	71.0	73.2									
A321	5	63.9	66.9	67.3	69.5	69.8										
A332	1	71.8														
B712	13	55.7	57.9	62.6	62.7	62.7	62.8	63.9	64.3	64.5	65.6	66.8	67.5	68.8		
B733	9	64.2	64.9	66.2	66.8	68.5	68.9	70.5	71.0	71.5						
B737	22	57.3	58.1	58.9	59.4	60.7	61.3	61.7	61.9	62.5	62.8	63.4	63.6	64.8	65.3	65.7
		65.8	67.0	67.1	67.7	67.7	68.0	73.3								
B738	26	58.2	59.7	61.0	62.9	63.2	63.2	63.4	63.8	64.1	64.6	64.6	65.0	65.1	66.0	66.7
		66.8	67.1	67.5	67.6	68.0	68.8	69.3	69.9	69.9	71.2	71.8				
B739	13	55.8	59.2	60.2	60.7	62.9	62.9	65.9	66.7	66.9	68.6	69.3	69.9	72.1		
B744	1	59.0														
B762	1	68.0														
C172	1	67.0														
C560	2	56.0	59.5													
CH7A	1	57.3														
CRJ2	23	56.2	56.9	57.5	57.5	57.6	57.7	57.8	57.9	58.0	58.2	59.0	59.5	59.6	59.6	60.0
		60.2	60.6	61.2	61.5	62.1	63.1	63.3	63.7							
CRJ7	4	56.6	62.5	63.7	65.4											
DA42	2	55.2	57.1													
E170	18	55.7	56.6	60.4	61.4	62.0	62.1	63.6	64.1	64.8	65.0	65.8	66.6	66.6	66.8	67.3
		67.6	68.5	68.6												
F900	1	66.4														
HELO	1	55.9														
P28A	1	56.8														
Total	**192**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	1	56.5														
A320	4	56.0	56.2	58.7	60.2											
B733	8	55.9	56.5	60.6	60.9	61.1	61.1	61.6	63.7							
B737	22	56.8	56.9	57.7	57.8	58.1	58.4	58.6	58.6	58.8	59.3	59.5	59.7	60.1	60.2	60.2
		60.4	61.5	61.9	62.4	62.4	63.6	63.9								
B738	1	64.3														
BE35	1	64.4														
BE36	1	63.9														
C152	1	62.3														
C172	7	57.6	58.7	61.8	62.7	62.7	62.8	64.7								
C182	4	59.5	64.0	64.3	65.4											
CRJ2	1	61.1														
CRJ9	1	55.4														
DA42	1	61.6														
DC10	1	58.5														
P28A	1	64.3														
SR22	1	58.1														
Total	**56**															

1300 Block of Geottingen St., San Francisco
Date: 5-28-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	8	58.6	64.0	64.1	65.2	65.8	67.0	67.6	69.0							
A320	32	56.2	56.6	58.0	60.4	60.5	60.7	61.0	61.0	62.6	62.7	65.1	65.4	65.5	66.0	66.1
		66.3	66.6	66.9	67.0	67.5	67.5	68.4	68.5	68.7	68.8	68.8	68.9	69.5	69.7	70.2
		70.4	70.7													
A321	3	64.9	65.3	68.4												
A332	1	72.6														
B407	1	68.3														
B712	7	58.3	60.7	60.8	63.6	63.7	67.0									
B733	10	61.8	63.3	65.2	66.3	67.0	68.6	68.6	69.7	70.1	71.3					
B737	16	56.8	57.1	59.2	60.8	60.9	61.8	62.6	63.5	63.5	64.1	66.9	67.3	67.6	67.6	67.6
		68.5														
B738	17	56.4	57.2	58.9	62.1	64.3	65.7	65.8	66.0	66.4	67.4	68.2	68.8	70.0	70.2	70.7
		70.7	70.8													
B739	12	55.5	55.9	57.5	61.3	61.6	64.7	65.5	65.8	67.6	69.4	69.6	69.8			
B752	1	63.7														
B77W	1	56.8														
B788	1	65.1														
C172	2	62.8	71.2													
CRJ2	18	55.2	55.3	56.4	56.9	57.3	57.9	58.0	58.5	58.7	59.1	59.2	59.9	60.0	60.1	60.2
		60.6	62.8	63.6												
CRJ7	6	56.0	56.0	57.1	61.7	62.3	62.7									
E170	16	58.1	59.1	60.0	61.1	63.5	63.6	64.2	65.7	66.0	66.1	66.5	66.6	67.9	68.5	69.0
		69.7														
PAY2	1	63.1														
Total	**153**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A320	3	59.2	59.4	59.6												
B712	1	60.6														
B733	4	56.4	57.8	60.6	61.9											
B737	17	55.2	55.7	56.3	56.5	56.7	57.9	58.1	58.3	59.4	59.7	59.8	59.8	60.0	60.6	60.9
		61.3	62.3													
B738	1	60.8														
BL8	1	60.5														
C152	1	57.7														
C172	3	59.0	61.4	71.9												
C182	3	57.2	59.0	66.6												
DA42	2	57.0	68.1													
Total	**36**															

1300 Block of Geottingen St., San Francisco
Date: 5-29-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	6	63.8	63.9	67.5	68.7	69.8	70.8									
A320	36	59.5	61.6	62.6	62.7	62.7	63.2	63.7	65.2	65.3	65.9	66.0	66.1	66.3	66.5	66.5
		67.5	67.5	67.8	67.8	67.9	68.1	68.3	68.5	68.7	68.8	68.9	69.2	69.3	69.4	69.7
		69.7	69.7	70.0	70.2	70.2	73.3									
A321	6	60.7	63.6	64.0	66.2	67.4	71.2									
A332	2	69.7	74.9													
B407	1	56.9														
B712	6	59.0	63.0	63.5	64.1	64.7	66.0									
B733	8	58.5	64.2	66.2	68.5	68.7	68.8	70.7	71.1							
B734	1	60.4														
B737	17	59.8	61.4	61.8	61.9	62.0	62.8	62.9	63.6	64.0	64.4	64.7	65.6	65.6	65.7	67.3
		69.5	69.6													
B738	18	56.9	60.3	61.2	61.6	63.1	63.2	63.4	66.3	66.3	66.6	66.6	66.9	67.2	68.0	68.2
		68.3	70.4	71.6												
B739	20	58.5	58.6	62.0	63.8	64.0	65.7	65.9	66.0	66.2	66.5	67.1	68.5	68.8	68.8	68.8
		69.1	69.2	69.5	70.0	73.1										
B753	1	68.4														
B788	1	64.5														
CRJ2	11	57.4	57.6	58.0	58.1	58.5	59.2	61.0	61.5	61.6	62.3	62.7				
CRJ7	9	56.8	57.9	58.6	59.2	59.2	59.4	60.2	60.3	61.2						
E170	15	55.9	56.4	60.6	61.4	61.7	64.1	64.4	64.6	64.8	65.8	65.9	66.3	67.2	68.7	73.7
E550	1	57.7														
HELO	2	57.4	62.1													
P28A	1	59.2														
Total	**162**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)									
A319	1	58.8									
A320	2	61.3	64.1								
B712	2	56.8	61.8								
B737	10	56.6	57.2	58.6	58.7	58.8	59.7	60.3	60.7	61.9	62.3
B738	2	58.3	60.3								
B739	1	57.8									
B763	2	57.8	58.0								
C172	5	60.4	61.6	65.1	65.3	67.5					
C182	2	61.8	62.7								
EC35	1	59.2									
HELO	1	71.7									
MD81	1	57.0									
P28A	1	61.5									
Total	**31**										

1300 Block of Geottingen St., San Francisco
Date: 5-30-2016

SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	6	56.7	62.0	63.8	66.9	67.0	68.3									
A320	31	56.9	57.4	58.2	58.9	58.9	59.1	60.0	60.6	60.7	61.5	61.9	62.4	63.8	64.3	69.4
		64.6	65.0	65.4	65.7	65.7	65.9	65.9	66.4	66.5	66.5	67.2	67.3	67.5	67.8	68.9
		69.4	69.5													
A321	5	59.5	64.0	65.6	66.2	68.0										
A332	2	68.7	70.6													
B407	1	76.2														
B712	7	61.8	62.0	62.5	64.5	65.3	65.8									
B733	17	55.8	60.6	62.6	63.4	64.1	64.3	65.4	65.6	65.8	66.9	67.1	67.2	67.8	68.0	
		69.0	73.1	73.6												
B734	1	65.0														
B737	13	56.2	58.3	60.4	61.6	63.4	63.8	64.0	66.2	66.6	67.1	67.3	69.0	69.5		
B738	23	56.7	62.2	63.2	63.3	63.5	64.3	64.4	64.8	65.2	65.4	66.0	66.1	66.5	66.6	67.4
		67.8	67.9	68.8	68.9	69.9	70.2	70.8	70.9							
B739	14	56.7	61.0	62.5	66.1	66.5	66.7	66.9	67.2	68.8	69.0	69.5	70.3			
		70.7	73.2													
B752	1	62.2														
B788	1	66.6														
BE20	2	61.1	67.6													
CRJ2	15	55.4	55.6	56.5	56.6	57.3	58.1	58.3	58.9	59.6	60.1	60.3	60.8	61.1	61.6	64.3
CRJ7	4	58.1	58.4	58.6	63.6											
E170	16	56.9	58.1	58.8	60.3	61.4	61.6	63.3	63.5	64.6	65.7	66.0	66.4	66.8	66.9	67.6
		69.6														
HELO	2	63.2	65.7													
P28A	1	68.0														
Total	**162**															

Non-SFO Aircraft (Red = arrival operation, Black = departure operation or overflight)

Aircraft Type	Amount	Maximum Noise Level (dBA)														
A319	1	56.5														
A320	2	60.3	64.0													
A332	1	56.1														
AA5	1	64.8														
B712	2	59.6														
B733	5	58.9	59.1	59.5	61.9	65.0										
B737	16	56.3	56.3	56.6	56.6	57.0	57.8	58.2	58.2	58.5	58.7	58.7	58.9	59.9	60.6	
		61.0	61.7													
B738	2	57.1	60.7													
BE40	1	58.3														
C172	11	56.3	56.4	57.6	58.4	58.8	60.0	60.7	60.7	60.9	64.1	69.5				
C182	2	58.0	62.0													
CRJ9	2	57.6	58.2													
GLF5	1	55.5														
H25B	1	60.8														
HELO	1	56.8														
LJ60	1	57.0														
M20P	1	61.7														
P28A	1	59.8														
PA32	1	61.5														
PC12	1	57.9														
Total	**54**															

Aircraft Type Reference Sheet

Wide Body Jet (Airplane fuselage is wide enough to accommodate two passenger aisles)		Narrow Body Jet (Airplane fuselage is wide enough to accommodate one passenger aisle)		Business Aircraft (Transportation for small groups of people)		General Aviation (Generally small, propeller-driven aircraft)		Helicopters (Aircraft operated by rotor blades)		Military (U.S. Military aircraft)	
A306	Airbus A300-600	A319	Airbus A319	AC50	North American Rockwell Commander 500	AA5	Grumman American AA-5	A139	Agusta Westland AW139	C130	Lockheed C-130 Hercules
A332	Airbus A330-200	A320	Airbus A320	B350	Beech 350 King Air	8KCAB	American Champion Decathlon	EC20	Eurocopter EC-120 Colibri	F18	McDonnell Douglas F/A-18 Hornet
A343	Airbus A340-300	A321	Airbus A321	BE20	Beechcraft 200 Super King Air	BE33	Beechcraft 35-B33 Debonair	EC45	Eurocopter EC-145	P3	Lockheed P-3 Orion
A346	Airbus A340-600	B733	Boeing 737-300	BE40	Beechcraft 400 Beechjet	BE35	Beechcraft 35 Bonanza	H60	Sikorsky MH-60 Black Hawk	T38	Northrop AT-38 Talon
A388	Airbus A380	B734	Boeing 737-400	BE9L	Beech 90 King Air	BE36	Beechcraft 36 Bonanza	HELO	Helicopter	V22	Bell Boeing V-22 Osprey
B744	Boeing 747-400	B735	Boeing 737-500	C210	Cessna 210 Centurion	BE55	Beechcraft 55 Baron	R22	Robinson R-22		
B748	Boeing 747-8	B737	Boeing 737-700	C25C	Cessna Citation CJ4	BE76	Beechcraft 76 Duchess	R44	Robinson R-44		
B762	Boeing 767-200	B738	Boeing 737-800	C421	Cessna 421 Golden Eagle	C140	Cessna 140				
B763	Boeing 767-300	B739	Boeing 737-900	C425	Cessna 425 Corsair/Conquest	C172	Cessna 172 Skyhawk				
B764	Boeing 767-400ER	B752	Boeing 757-200	C510	Cessna 510 Citation Mustang	C177	Cessna 177 Cardinal				
B772	Boeing 777-200	B753	Boeing 757-300	C525	Cessna 525 Citation CJ1	C180	Cessna 180				
B77W	Boeing 777-300ER	CRJ2	Bombardier CRJ-200	C560	Cessna 560 Citation 5	C182	Cessna 182 Skylane				
B788	Boeing 787-8	CRJ7	Bombardier CRJ-700	C56X	Cessna 560XL Citation Excel	C185	Cessna 185 Skywagon				
MD11	McDonnell Douglas MD-11	CRJ9	Bombardier CRJ-900	C680	Cessna 680 Citation Sovereign	C208	Cessna 208 Caravan				
		DH8D	Bombardier Dash 8 - Q400	C750	Cessna Citation X	C310	Cessna 310				
		E120	Embraer EMB 120 Brasilia	CL30	Bombardier Challenger 300	C337	Cessna 337 Super Skymaster				
		E170	Embraer EMB 170	E50P	Embraer EMB-500 Phenom 100	C340	Cessna 340				
		E45X	Embraer EMB 145XR	E55P	Embraer EMB-500 Phenom 300	CH7A	American Champion 7ECA Citabria Aurora				
		MD83	McDonnell Douglas MD-83	F2TH	Dassault Falcon 2000	COZY	Cozy MK IV				
		MD88	McDonnell Douglas MD-88	F900	Dassault Falcon 900	DA40	Diamond DA40 Diamond Star				
		MD90	McDonnell Douglas MD-90	FA7X	Dassault Falcon 7X	DA42	Diamond DA42 Twin Star				
				GALX	Dassault Falcon 900EX	LNC4	Lancair 4				
				GLF4	Gulfstream 4	M20	Aerostar				
				GLF5	Gulfstream 5	M20P	Mooney M-20				
				GL5T	Bombardier Global 5000	MU2	Mitsubishi MU-2				
				GLEX	Bombardier Global Express	P28A	Piper 28A Cheorkee				
				H25B	Hawker-Beechcraft Hawker 800/850	P28B	Piper 28B Cheorkee				
				HA4T	Hawker-Beechcraft Hawker 4000	P28R	Piper 28R Cheorkee				
				J328	Fairchild Dornier 328JET	P32R	Piper Saratoga				
				LJ30	Learjet 31A	PA24	Piper PA24 Comanche				
				LJ60	Learjet 60	PA32	Piper PA32 Cherokee Six				
				PC12	Pilatus PC-12 Eagle	PA44	Piper PA-44 Seminole				
				SW4	Fairchild Swearingen Metroliner	RV6	Vans RV-6				
				TBM7	Socata TBM-700	SR20	Cirrus SR-20				
				WW24	IAI 1124 Westwind	SR22	Cirrus SR-22				
						T182	Cessna T182 Turbo Skylane				

1300 Block of Geottingen St., San Francisco
Dates: 5-14-2016 through 5-30-2016

All Aircraft Noise Events by Hour (SFO Aircraft & Non-SFO Aircraft)

Hour	05-14-2016	05-15-2016	05-16-2016	05-17-2016	05-18-2016	05-19-2016	05-20-2016	05-21-2016	05-22-2016	05-23-2016	05-24-2016	05-25-2016	05-26-2016	05-27-2016	05-28-2016	05-29-2016	05-30-2016	Total
Midnight	4	2		3	2	1		1	2	3	2	4	2		1		1	28
1:00 a.m.	2		1	2	1	1		2		1	1		2		3		1	17
2:00 a.m.									1			1			1			3
3:00 a.m.																		0
4:00 a.m.																		0
5:00 a.m.		1	3	3	2	1	1		1	2	4	1	2	2			1	24
6:00 a.m.	9	8	16	5	17	2	9	7	3	14	10	9	18	9	7	7	3	153
7:00 a.m.	13	10	15	10	11		1	14	9	15	10	6	11	12	11	6	5	159
8:00 a.m.	10	12	14	11	8	1	5	13	11	12	9	9	8	15	9	10	9	166
9:00 a.m.	12	14	14	10	12	4	2	19	12	14	18	11	18	17	11	14	16	218
10:00 a.m.	11	12	14	13	18	1	3	10	11	13	15	11	12	16	15	14	13	202
11:00 a.m.	18	22	20	14	21	2	1	15	19	14	13	16	18	17	16	21	22	269
Noon	10	16	19	9	18	2	1	13	15	17	15	12	20	19	11	19	16	232
1:00 p.m.	12	7	9	10	15			11	14	15	16	12	14	10	12	10	10	177
2:00 p.m.	10	10	16	8	18	11	7	11	14	22	16	14	19	14	9	11	22	232
3:00 p.m.	8	2	17	16	16		2	10	13	13	10	3	17	12	9	9	15	172
4:00 p.m.	8	4	11	3	12	4	2	8	15	12	16	2	18	14	12	12	12	165
5:00 p.m.	12	4	9	4	16	1	3	13	11	11	11	5	13	11	10	17	11	162
6:00 p.m.	5	3	6	10	12	1	4	11	9	13	9	7	1	12	6	10	10	129
7:00 p.m.	7	5	18	14	16	3	2	5	14	14	17	4	2	24	17	11	14	187
8:00 p.m.	10	3	8	15	9	1	1	11	11	5	5	1	8	12	11	8	7	126
9:00 p.m.	2	4	8	12	12		3	3	11	7	12	7	12	14	5	4	11	127
10:00 p.m.	5	1	5	10	6	1		4	4	5	4	7	7	10	5	2	12	88
11:00 p.m.	4		6	6	7	1	3	7	9	7	10	8	9	8	8	8	5	106
Total	**172**	**140**	**229**	**188**	**249**	**38**	**50**	**188**	**209**	**229**	**223**	**150**	**231**	**248**	**189**	**193**	**216**	**3,142**

AIRPORT NOISE NEWS

Regular Meeting # 302
August 3, 2016

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Airport Noise Report

A weekly update on litigation, regulations, and technological developments

Volume 28, Number 23 July 22, 2016

Legislation

SENATE BILL WOULD GIVE EPA OVERSIGHT OF AIRCRAFT NOISE ISSUES; REVIVE ONAC

On July 15, New York Democratic Sens. Charles Schumer and Kirsten Gillibrand introduced the Quiet Communities Act of 2016 (S. 3197), which would empower the Environmental Protection Agency to oversee airplane noise issues across the country.

The legislation, introduced in response to constituent concerns about increased aircraft noise impact, would revive the EPA's dormant Office of Noise Abatement and Control (ONAC), which was defunded in 1981. That has long been a goal of community anti-noise groups who feel the Federal Aviation Administration's noise policy is outdated and does not address their concerns.

The bill would authorize appropriations of $21 million to fund EPA's Office of Noise Abatement and Control for each of fiscal years 2017 through 2021.

Sens. Schumer and Gillibrand are trying to push the bill through Congress as quickly as possible but the 114th Congress ends on Jan. 3, 2017. If the bill is not passed by then, they will have to reintroduce it in the next Congress.

(Continued on p. 91)

Research

MA SENATORS, REPS ASK NAS TO STUDY NEXT-GEN FLIGHT PATH IMPACTS ON HEALTH

Massachusetts Senators Elizabeth Warren and Edward Markey, along with MA Reps. Michael Capuano, Stephen F. Lynch, and Katherine Clark, asked the National Academy of Sciences (NAS) in a July 7 letter to conduct a study on the effects of air traffic noise and pollution from focused NextGen flight paths on human health.

Their letter was sent at the urging of leaders of the Town of Milton, MA, a residential community of 27,000 people located 12 miles south of Boston Logan International Airport and under new concentrated NextGen flight paths that the Town has been fighting for several years.

"While there has been some research in this area, we believe this issue merits much more independent and high-quality objective research to help Congress assess this problem and take appropriate action," the Massachusetts lawmakers told NAS President Marcia McNutt in a their letter.

They noted the sharp increase in noise complaints from flight path changes at various locations around the country. For instance, between January and September of 2015, more than 11,000 noise complaints were logged by the Massachusetts Port

(Continued on p. 93)

In This Issue…

Legislation, from p. 90

The legislation is the Senate companion to a House bill – the Quiet Communities Act of 2015 – introduced in July 2015 by Rep. Grace Meng (D-NY) (27 ANR 140).

Currently, the Federal Aviation Administration oversees airplane noise issues, however, Sens. Schumer and Gillibrand explained in a press release that the EPA is better fit to address these matters.

"Communities in the New York-metro area have long struggled with incessant airplane noise caused by the highly-trafficked skies above and it's time we set up an office dedicated to tackling this issue head on," said Schumer, who is expected to become Senate Majority Leader if the Democrats take control of the Senate in the upcoming November election.

"Airplane noise is a major quality of life issue and that's why it makes sense for the EPA to take the lead role in addressing these matters. This legislation will once again set up an Office of Noise Abatement and Control at the EPA so that environmental experts can address airplane noise," he said.

"This legislation will provide additional tools to assist communities is addressing excessive airplane noise by reestablishing an EPA Office of Noise Abatement & Control," said Sen. Gillibrand, a member of the Senate Environment and Public Works Committee.

"The federal government must take more proactive steps to address the concerns of New Yorkers who are affected by airplane noise, and this bill will give the EPA the ability to act."

Schumer and Gillibrand went on to say that the EPA's core mission is to protect human health and the environment, and so it would make sense for the EPA to be granted jurisdiction over airplane noise.

The senators said airplane noise can greatly impact the environment and an individual's quality of life and that's why the EPA should take the lead on airplane noise issues.

EPA Would Conduct Research

Under their legislation, the EPA would conduct research on the impacts of noise and provide technical assistance and grants to communities to mitigate noise. The bill also would require the EPA Office of Noise Abatement and Control to carry out a study on airport noise, examining FAA noise measurement methodologies, the threshold of noise at which health impacts are felt, and the effectiveness of noise mitigation measures at airports.

Due to budget cuts in 1981, the EPA's Office of Noise Abatement and Control was dismantled and the FAA was given oversight into all matters regarding aircraft noise pollution.

Schumer and Gillibrand said that they have long supported measures to help address the issue of airplane noise in local communities.

Specifically, they successfully pushed for a hotline phone number for airplane noise complaints. And, after Schumer's urging, New York State directed the Port Authority of New York and New Jersey to hold regular roundtable discussions in collaboration with FAA representatives and other affected parties regarding issues at two major New York airports.

Schumer has urged the Port Authority and FAA to install additional noise monitors at airports and use the data collected to make decisions about changes to flight patterns. Earlier this summer, the senators urged the Port Authority of New York and New Jersey to complete its Part 150 noise studies as quickly and thoroughly as possible so that it can begin taking noise mitigation steps. The Part 150 studies aim to evaluate noise impacts to the communities surrounding JFK and LaGuardia Airport and, once complete, Schumer and Gillibrand said that the studies will recommend measures to mitigate excessive noise where possible.

FAA Reauthorization

NOISE PROVISIONS NOT INCLUDED IN AUTHORIZATION EXTENSION

On July 6, House and Senate leaders agreed to a bipartisan measure to extend the authorization of FAA's current programs and funding through Sept. 30, 2017, after House Transportation and Infrastructure Committee Chairman Bill Shuster (R-PA) agreed to temporarily drop his effort to privatize FAA's air traffic service.

However, the extension of FAA's authorization (agreed to by the House on July 11 and the Senate on July 13) omitted provisions addressing NextGen noise impact that had been added to the original House and Senate FAA reauthorization bills by the House Quiet Skies Caucus and Arizona Sens. John McCain (R) and Jeff Flake (R).

The extension gives Rep. Shuster and the airlines more time to try to build support for privatizing FAA's air traffic service, which Senate Democrats staunchly oppose.

An important question left unanswered by Shuster's measure to privatize FAA's air traffic services – which would transfer FAA's authority over airspace issues to an ATC Corporation dominated by the airlines – is weather the FAA would have the authority to reject an airspace or policy change sought by the ATC Corporation for non-safety reasons, such as community or environmental impact (28 ANR 22). Democrats will demand clarity on that issue if discussions on ATC privatization continue.

Noise Provisions Omitted

The extension of FAA's authorization in House Resolution 818, the "FAA Extension, Safety and Security Act of 2016," includes aviation safety and security provisions but none of the many noise provisions that had been included in the original House and Senate FAA reauthorization bills.

The House FAA reauthorization bill – the Aviation, Innovation, Reform and Reauthorization Act (AIRR Act), (H.R. 4441) – would have required the FAA:

• To conduct a review of the relationship between aircraft noise exposure and its effects on communities around airports and to submit a report to Congress recommending revisions, if appropriate, to Part 150 land use compatibility guidelines;

• To notify and consult with airports and consider consultation with communities, before applying CatEx 1 and Catex 2 provisions to NextGen Performance-based Navigation (PBN) procedures;

• To improve community involvement in FAA Metroplex projects; and

• To consider the feasibility of dispersal headings or other lateral track variations to address community noise concerns about new or revised area navigation procedures up to 6,000 feet above noise sensitive areas proposed by FAA if an airport operator, in consultation with affected communities, asked the agency to do so.

The Senate FAA reauthorization bill – Federal Aviation Administration Reauthorization Act of 2016. (S. 636) – would have required FAA:

• To review airspace procedures being implemented at airports, if asked by communities, to determine if they would have a significant effect on the "human environment" in the community in which the airport is located. If they did, the FAA would have been required to consider the use of alternative flight paths;

• To create an Airspace Management Advisory Committee to review and report to Congress on the agency's process for developing proposals that impact airspace changes.

Sens. McCain and Flake also introduced a separate bill with similar provisions (S. 2585; the Airspace Management Advisory Committee Act) on Feb. 25, which was referred to the Senate Aviation Subcommittee. However, it is not likely to be acted on by the Committee before Congress expires at the end of the year;

• To clarify when airports must supply noise map revisions to the FAA; and

• To require FAA to track the use of existing performance based navigation procedures and other key NextGen operational improvements and to implement guidelines for including key stakeholders, such as airports, in the planning and implementation of NextGen improvements.

Meng Criticizes Omission of Noise Provisions

U.S. Rep. Grace Meng (D-NY), a founder and Co-Chair of the Congressional Quiet Skies Caucus, sharply criticized the omission of aircraft noise mitigation provisions in the FAA Extension, Safety and Security Act.

Meng also expressed disappointment over the lack of transparency and the manner in which the bill was brought to the House Floor, pointing out that members of the House were not allowed to offer any amendments, provide input, or address concerns of labor unions.

The Congresswoman said that the legislation will not expire until September 30, 2017, meaning that for more than a year, Members of Congress won't have any opportunities to be heard on issues surrounding this important legislation.

She noted that the AIRR Act was not voted on but included processes for notifying communities near airports of flight path changes and a study on the health impacts of noise exposure.

"The absence of any measures to combat the problem of excessive aircraft noise is a huge disappointment," said Meng. "I have consistently called for this important legislation to include provisions to mitigate airplane noise. This bill would have allowed for an opportunity to directly address the issue, and the previous version of this legislation included ways to deal with it.

"It is also very unfortunate that this bill was rushed through while keeping House members out of the process. Queens and other affected communities continue to be bombarded by the roaring sounds of aircraft noise that constantly disrupt the quality of life in our neighborhoods. A solution must be reached and I will keep up the fight until we achieve one."

ACRP

GUIDE ON AIRPORT'S ROLE IN PBN IMPLEMENTATION ISSUED BY TRB

On July 8, the Transportation Research Board issued a Resource Guide for airports on all aspects of Performance-Based Navigation and how PBN implementation affects overall airport operations.

Airport Cooperative Research Program *Report 150: NextGen for Airports: Volume 1: Understanding the Airport's Role in Performance-Based Navigation: Resource Guide* is the first in a series of five reports TRB plans to issue this year under its ACRP NextGen Initiative.

The other reports in the NextGen series are:

• ACRP Project 01-27: NextGen – A Primer

• ACRP Project 01-28, NextGen—Guidance for Engaging Airport Stakeholders;

• ACRP Project 03-33, NextGen—Airport Planning and Development; and

• ACRP Project 09-12, NextGen—Leveraging NextGen Spatial Data to Benefit Airports.

The purpose of the Airport PBN Resource Guide, which was the subject of ACRP Project 03-34, is to provide comprehensive information concerning PBN "presented in an understandable, usable, and accessible format for airport operators, planners, managers, and other appropriate stakeholders," the guide notes.

"This Resource Guide encompasses background information, description of effects on short- and long-term airport development, impacts on safety and performance measures, and other critical factors affecting future airport operations," TRB Staff Officer Lawrence Goldstein explained in a *Foreword* to the report.

"In addition to providing guidance to users on available resources for additional assistance, this volume also includes

lessons learned and best practices based on findings from case studies that examined the airport operator's role in PBN implementation" at Atlanta, Seattle, Denver, Minneapolis, Henderson, and Houston, Goldstein said.

The report can be downloaded at http://www.trb.org/ACRP/Blurbs/174588.aspx

Legislation

BILL WOULD PREVENT RUNWAY AT LAX FROM BEING MOVED

On July 7, Rep. Maxine Waters (D-CA), Ranking Member of the House Financial Services Committee, introduced the LAX Community Safety Act (H.R. 5651) to prevent Runway 24R, the northernmost runway at Los Angeles International Airport (LAX), from being relocated farther to the north.

"Relocating LAX's northernmost runway farther to the north would increase noise, air pollution, and other environmental impacts on residents, schools, churches, and businesses in the communities surrounding LAX," said Congresswoman Waters.

LAX has two pairs of parallel runways: the North Runways, located north of the main terminals, and the South Runways, located south of the main terminals. Runway 24R is the northernmost of the two North Runways. Los Angeles World Airports (LAWA), which operates LAX, has proposed relocating Runway 24R at least 260 feet north of its current location, bringing it closer to the residential communities north of LAX.

"LAX operations already cause tremendous noise, air pollution and traffic congestion for the communities near LAX," said Congresswoman Waters. "Relocating Runway 24R closer to Westchester will exacerbate these impacts."

The communities most impacted by the operations of the LAX North Runways include the communities of Westchester and Playa del Rey, which lie along the north side of LAX, and the City of Inglewood and the community of South Los Angeles, which lie to the east of LAX underneath the arrival flight path. Members of these communities have expressed strong opposition to runway relocation.

"Safety is a critical concern for LAX," said the Congresswoman. "That includes both the safety of the airport and all who use the airport and the safety of the surrounding communities. Relocating Runway 24R farther to the north would bring the risk of an aircraft accident closer to homes, schools, churches, and businesses in Westchester and Playa del Rey and, consequently, reduce safety for people who live and work in these communities."

LAWA has argued that relocating the northernmost runway at LAX would improve safety. However, Rep. Waters noted that a panel of academic experts studied the configuration of LAX and concluded that the airport is safe under its current configuration.

Research, from p. 90

Authority, proprietor of Boston Logan. During the same period in 2012, 1,700 noise complaints were filed.

"Chicago's O'Hare International Airport topped two million jet noise complaints during the first seven months of 2015 – eight times the number filed in all of 2014. There has been spikes in aircraft noise complaints at airports in San Francisco, Baltimore, Phoenix, and other cities," the lawmakers stressed.

"In Massachusetts, the noise increase goes well beyond the threshold of being an annoyance, and there is growing concern in our communities that aircraft noise could be impacting human health," the delegation members wrote.

They said their concerns "are not just anecdotal," noting that several studies have found associations between aircraft noise and various health problems.

"While there has been some research in this area, we believe this issue merits much more independent and high quality objective research to help Congress assess this problem and take appropriate action," the lawmakers asserted.

They asked the NAS president to convene "a multidiscipline expert committee to conduct a study to determine the causes of these increased noise reports and the health impacts of increased jet noise in these communities, and to author a report with recommendations on how to address the problem."

They said the study and report should include:

• An evaluation of the human environment and specific health impacts related to aircraft noise and pollution, including carbon dioxide or other emissions associated with air quality;

• A statistical analysis of noise complaints filed by residents in communities near large and medium hub airports where NextGen flight path changes have been implemented and the "absolute levels" of noise exposure experienced by those filing noise complaints;

• A review and evaluation of FAA's current policies and abilities to respond and address noise concerns, including FAA policies related to Day-Night Average Sound Level (DNL);

• An analysis of "what is an appropriate DNL limit," including alternative methodologies to measure community noise exposure;

• An analysis of the processes used to determine how flight paths could be altered to mitigate the noise caused by these flights, including the utilization of noise mapping;

• A thorough analysis of aircraft noise reduction technologies, including a cost-benefit analysis of technologies currently utilized on aircraft that operate in the European Union and other high air traffic areas; and

• Provide recommendations on the best and most cost-effective approaches to address increased aircraft noise and other issues as the expert committee considers appropriate.

On April 27, MA Rep. Stephen Lynch and 16 members of

the House Quiet Skies Caucus introduced the Airplane Impacts Mitigation Act of 2016 (H.R. 5075) which would require the FAA Administrator to enter into an agreement with a school of public health to conduct a study of the health impacts of tightly focuses NextGen flight track (28 ANR 58).

The study would include people living under NextGen flight paths in Boston, Chicago, New York, the Northern California area, Phoenix, and three other metropolitan areas. It would focus on asthma exacerbation, sleep disturbance, stress, and elevated blood pressure.

The bill was referred to the House Transportation and Infrastructure Committee where it now sits and is not likely to be considered by the Republican-controlled committee.

In Brief…

AEDT Training Course in San Diego

The Volpe Center is proud to announce a full day, introductory level, hands on training course on the Aviation Environmental Design Tool (AEDT) version 2b on the West Coast.

The training will be held on October 19, 2016, (just after the AAAE/ACI-NA Airport Noise Conference), hosted by the San Diego International Airport Noise Mitigation Office.

Note that space is limited to 20 participants so sign up soon. Please visit our website for more information about the course and to register.

https://www.volpe.dot.gov/policy-planning-and-environment/environmental-measurement-and-modeling/volpe-aedt-training

Key West, T.F. Green Awarded AIP Noise Grants

Rep. Carlos Curbelo (R-FL) announced on July 8 that FAA has awarded a $1.35 million Airport Improvement Grant to Key West International Airport for noise mitigation.

Sen. Jack Reed (D-RI) announced on July 9 that FAA awarded T.F. Green Airport in Warwick, RI, a $9.3 million AIP grant, of which $887,032 may be used for voluntary acquisition of three homes and $8.4 million will be used to provide sound insulation for 76 single family homes, 142 condominiums, and 82 apartments.

AIRPORT NOISE REPORT

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San Francisco International Airport

Aircraft Noise Abatement Office

Glossary of common Acoustic and Air Traffic Control terms

A

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

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

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

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

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

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

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

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

Arrival – The act of landing at an airport.

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

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

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

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

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

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

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

B

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

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

C

Center – See ARTCC.

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

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

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

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

D

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

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

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

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

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

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

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

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

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

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

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

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

E

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

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

F

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

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

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

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

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

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

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

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

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

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

G

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

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

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

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

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

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

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

H

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

I

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

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

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

IMC – Instrument Meteorological Conditions - Weather conditions expressed in terms of visibility, distance from clouds, and cloud ceilings during which all aircraft are required to operate using instrument flight rules.

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

J

K

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

L

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

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

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

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

M

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

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

N

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

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

Navaid – Navigational Aid.

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

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

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

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

NMS – See RMS

Noise Contour – See CNEL and DNL Contour.

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

O

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

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

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

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

P

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

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

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

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

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

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

Q

R

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

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

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

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

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

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

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

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

S

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

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

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

Single Event – Noise generated by a single aircraft overflight.

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

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

T

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

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

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

Threshold – Specified boundary.

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

U

V

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

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

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

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

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

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

W

X

Y

Z

how to reach us

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Airport Web Page:	**www.flysfo.com**
Noise Abatement Web Page:	**http://www.flysfo.com/community-environment/noise-abatement**
Roundtable Web Page:	**www.sforoundtable.org**