



# Meeting Announcement

## Regular Meeting

Meeting No. 327  
Wednesday, October 7, 2020 - 7:00 p.m.

**\*BY VIDEO CONFERENCE ONLY\***

Please click the link below to join the webinar:

<https://smcgov.zoom.us/j/96132999328>

Or Dial in:

US: +1(669)900-6833 Webinar ID: 961 3299 9328

Note: To arrange an accommodation under the Americans with Disabilities Act to participate in this public meeting, please call (650) 363-4220 at least 2 days before the meeting date.

### **PUBLIC PARTICIPATION:**

Written public comments can be emailed to [info@sfoundtable.org](mailto:info@sfoundtable.org), and should include specific agenda item to which you are commenting. Spoken public comments will also be accepted during the meeting through Zoom.

\*\*Please see instructions for written and spoken comments at the end of this agenda.

### **AGENDA**

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

Ricardo Ortiz, Roundtable Chairperson

Public Comment on Items NOT on the Agenda

Speakers are limited to two minutes. Roundtable members cannot discuss or take action on any matter raised under this item.

Action to set Agenda and to Approve Consent Items

Ricardo Ortiz, Roundtable Chairperson

### **CONSENT AGENDA**

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

1. Airport Director's Reports

a. May 2020 through August 2020

pg. 8

2. Minutes from the August 5, 2020, Regular Meeting

pg. 28

## Regular Meeting Agenda

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### 3. Establishing Regular 2021 Roundtable Dates

Ricardo Ortiz, Roundtable Chairperson

pg. 33

## PRESENTATIONS

### 4. Chairman's Update

Ricardo Ortiz, Roundtable Chairperson

a. Michele Rodriguez Introduction

pg. 35

b. Aviation Noise & Emissions Symposium 2021

pg. 36

### 5. Presentation from FAA

Sky Laron, Community Engagement Officer, Federal Aviation Administration

a. Noise Portal

pg. 38

b. NIITE/HUSSH Update

### 6. Report from San Francisco Airport Commission

Ivar Satero, Airport Director, San Francisco International Airport

### 7. Presentation from Noise Office

Bert Ganoung, Aircraft Noise Office Manager

a. Ground-Based Augmentation System (GBAS) Update

b. New Noise App

## REGULAR AGENDA

### 8. Roundtable Budget

Ricardo Ortiz, Roundtable Chairperson

pg. 51

a. Review Four Year Budget FY 2019-2024

b. Adopt Annual Budget FY 2020-2021

c. Budget Authorization to complete Ground-Based Noise Study

### 9. Appoint Strategic Plan Ad-Hoc Committee

Ricardo Ortiz, Roundtable Chairperson

a. Develop a Roundtable Strategic Plan (FY20-24) and Annual Work Plan (FY20-21)

pg. 54

## REPORTS

### 10. General Aviation Noise Issues Update

a. FAA Reauthorization Act of 2018, Section 188: Evaluating Alternative Noise Metrics

i. Letter from Members of Congress – September 23, 2020

pg. 58

ii. Letter from FAA Administrator – April 14, 2020

pg. 63

b. HMMH

iii. IFP Gateway

pg. 87

iv. Noise Newsletter

pg. 89

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### 11. Member Communications / Announcements

Roundtable Members & Staff

### 12. Adjourn

Ricardo Ortiz, Roundtable Chairperson

### Correspondences / Additional Reports

- |  |         |
|--|---------|
| a. SFO Press Release Zero Emission                     | pg. 96  |
| b. SFO Airport Commission 50 <sup>th</sup> Anniversary | pg. 98  |
| c. N.O.I.S.E. Federal Update                           | pg. 124 |
| d. Airport Noise Report - September 2020               | pg. 126 |

### **\*\*Instructions for Public Comment during Videoconference Meeting**

During videoconference meetings of the SFO Airport/Community Roundtable, members of the public may address the Roundtable as follows:

#### **Written Comments:**

Written public comments may be emailed in advance of the meeting. Please read the following instructions carefully:

1. Your written comment should be emailed to [info@sforoundtable.org](mailto:info@sforoundtable.org).
2. Your email should include the specific agenda item on which you are commenting.
3. Members of the public are limited to one comment per agenda item.
4. The length of the emailed comment should be commensurate with two minutes customarily allowed for verbal comments, which is approximately 250-300 words.
5. If your emailed comment is received by 7:00 pm on the day before the meeting, it will be provided to the Roundtable and made publicly available on the agenda website under the specific item to which comment pertains. The Roundtable will make every effort to read emails received after that time but cannot guarantee such emails will be read during the meeting, although such emails will still be included in the administrative record.

#### **Spoken Comments:**

Spoken public comments will be accepted during the meeting through Zoom. Please read the following instructions carefully:

1. The October 7, 2020 SFO Roundtable regular meeting may be accessed through Zoom online at <https://smcgov.zoom.us/j/99653398354>. The meeting ID: 961 3299 9328. The meeting may also be accessed via telephone by dialing in +1-669-900-6833, entering meeting ID: 961 3299 9328, then press #.
2. You may download the Zoom client or connect to the meeting using the internet browser. If you are using your browser, make sure you are using current, up-to-date browser: Chrome 30+, Firefox 27+, Microsoft Edge 12+, Safari 7+. Certain functionality may be disabled in older browsers including Internet Explorer.
3. You will be asked to enter an email address and name. We request that you identify yourself by name as this will be visible online and will be used to notify you that it is your turn to speak.
4. When the Roundtable Chairperson calls for the item on which you wish you speak click on "raise-hand" icon. You will then be called on and unmuted to speak.

## Regular Meeting Agenda

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5. When called, please limit your remarks to the time limit allotted.

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**Note:** Public records that relate to any item on the open session Agenda (Consent and Regular Agendas) for a Regular Airport/Community Roundtable Meeting are available for public inspection. Those records that are distributed less than 72 hours prior to a Regular Meeting are available for public inspection at the same time they are distributed to all Roundtable Members, or a majority of the Members of the Roundtable. The Roundtable has designated the San Mateo County Planning & Building Department, at 455 County Center, 2nd Floor Redwood City, California 94063, for the purpose of making those public records available for inspection. The documents are also available on the Roundtable website at: [www.sforoundtable.org](http://www.sforoundtable.org).





# Member Roster

September 2020

**CITY AND COUNTY OF SAN FRANCISCO  
BOARD OF SUPERVISORS**  
Ahsha Safai

**CITY AND COUNTY OF SAN FRANCISCO MAYOR'S  
OFFICE**  
Edward McCaffrey (Appointed)

**CITY AND COUNTY OF SAN FRANCISCO AIRPORT  
COMMISSION REPRESENTATIVE**  
Ivar Satero (Appointed)  
Alternate: Doug Yakel

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

**CITY/COUNTY ASSOCIATION OF GOVERNMENTS  
AIRPORT LAND USE COMMITTEE (ALUC)**  
Carol Ford (Appointed)

**TOWN OF ATHERTON**  
Elizabeth Lewis  
Alternate: Rick DeGolia

**CITY OF BELMONT**  
Davina Hurt  
Alternate: Tom McCune

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

**CITY OF BURLINGAME**  
Ricardo Ortiz

**CITY OF DALY CITY**  
Pamela DiGiovanni  
Alternate: Rod Daus-Magbual

**CITY OF FOSTER CITY**  
Sam Hindi  
Alternate: Sanjay Gehani

**CITY OF HALF MOON BAY**  
Harvey Rarback  
Alternate: Adam Eisen

**TOWN OF HILLSBOROUGH**  
Alvin Royse  
Alternate: Shawn Christianson

**CITY OF MENLO PARK**  
Cecilia Taylor  
Alternate: Cathy Carlton

**CITY OF MILLBRAE**  
Ann Schneider  
Alternate: Anne Oliva

**CITY OF PACIFICA**  
Mike O'Neill  
Alternate: Deirdre Martin

**TOWN OF PORTOLA VALLEY**  
Ann Wengert  
Alternate: Craig Hughes

**CITY OF REDWOOD CITY**  
Janet Borgens  
Alternate: Giselle Hale

**CITY OF SAN BRUNO**  
Marty Medina  
Alternate: Rico Medina

**CITY OF SAN CARLOS**  
Adam Rak  
Alternate: Mark Olbert

**CITY OF SAN MATEO**  
Eric Rodriguez  
Alternate: Diane Papan

**CITY OF SOUTH SAN FRANCISCO**  
Mark Addiego  
Alternate: Mark Nagales

**TOWN OF WOODSIDE**  
Thomas Livermore  
Alternate: Richard Brown

## ROUNDTABLE ADVISORY MEMBERS

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

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

**ROUNDTABLE STAFF**  
Michele Rodriguez, Roundtable Coordinator  
Linda Wolin, Senior Legislative Assistant  
Angela Montes, Roundtable Administrative Secretary  
Gene Reindel, Technical Consultant (HMMH)  
Justin Cook, Technical Consultant (HMMH)  
Adam Scholten, Technical Consultant (HMMH)

**SFO AIRPORT NOISE OFFICE STAFF**  
Bert Ganoung, Noise Office Manager  
David Ong, Noise Systems Manager  
Anthony Carpeneti, Noise Abatement Specialist  
Anneliese Taing, Noise Abatement Specialist



# Welcome

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

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

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

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



# About the Roundtable

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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 2020, 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) 363-4220.

## POLICY STATEMENT

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

**“The Airport/Community Roundtable members, as a group, when considering and taking actions to mitigate noise, will not knowingly or deliberately support, encourage, or adopt actions, rules, regulations or policies, that result in the “shifting” of aircraft noise from one community to another, when related to aircraft operations at San Francisco International Airport.”**

*(Source: Roundtable Resolution No. 93-01)*

## FEDERAL PREEMPTION, RE: AIRCRAFT FLIGHT PATTERNS

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

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

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



# Airport Director's Report

Presented at the October 7, 2020  
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office  
May 2020



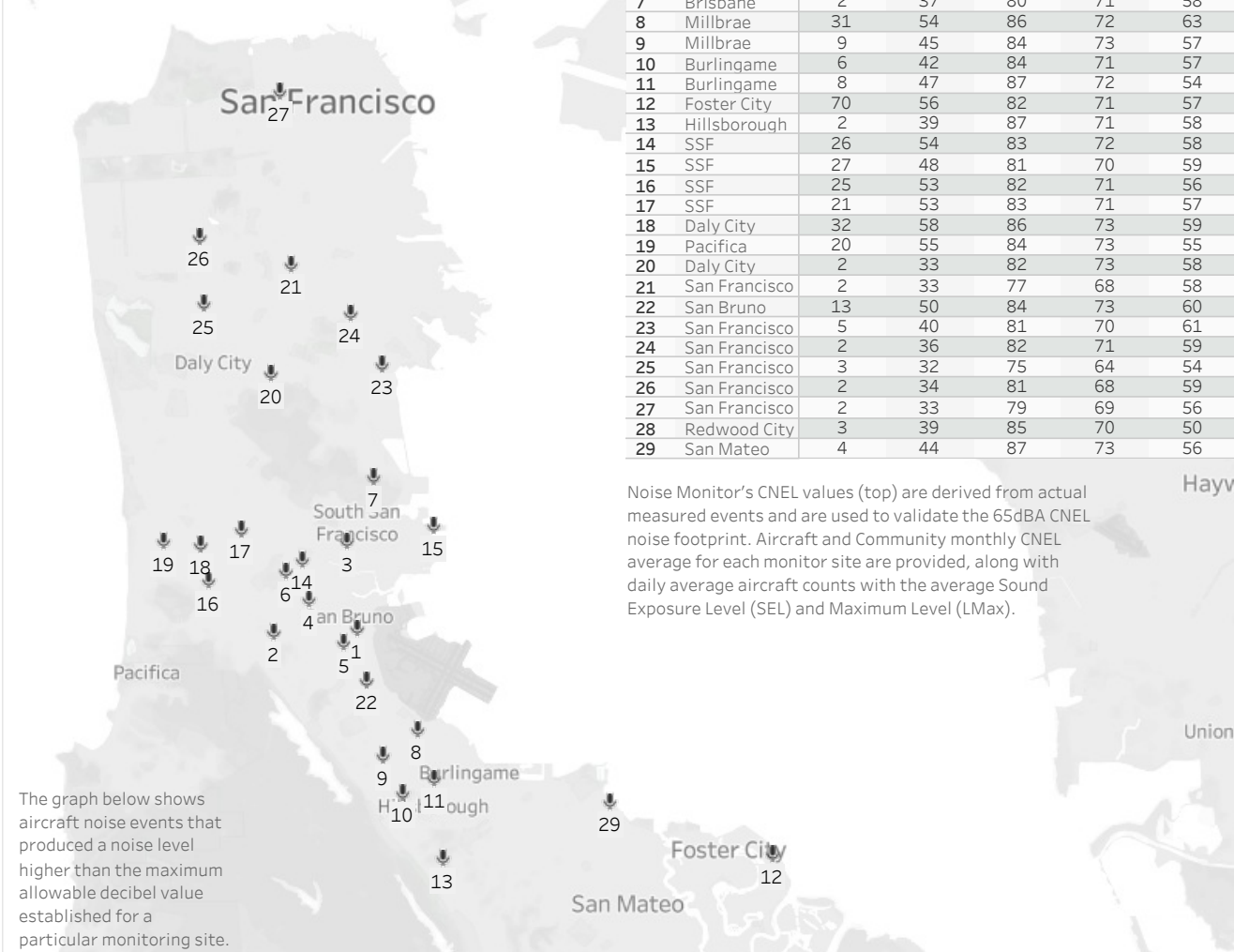
San Francisco  
International  
Airport

# Aircraft Noise Levels

May 2020

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

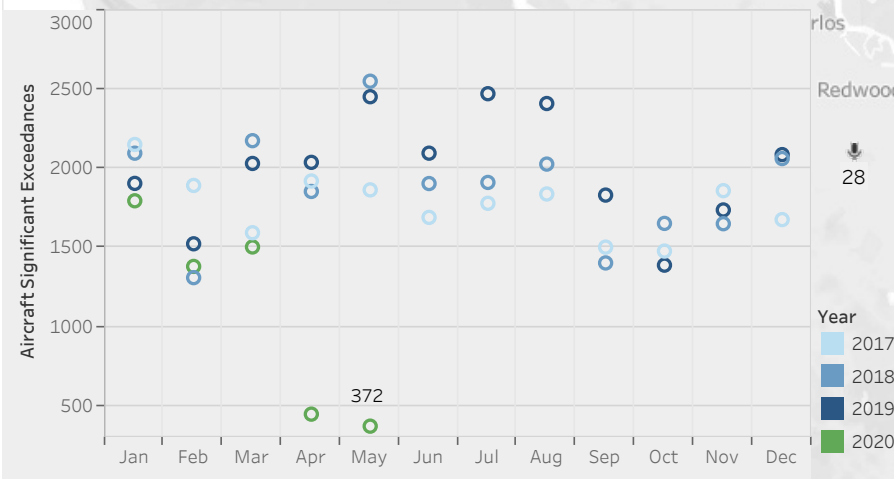
Site	City	Noise Events (AVG Day)	Aircraft		Community	
			CNEL (dBA)	SEL (dBA)	LMax (dBA)	CNEL (dBA)
1	San Bruno	59	67	91	79	65
2	San Bruno	5	45	82	71	61
3	SSF	8	46	83	72	58
4	SSF	39	62	89	76	58
5	San Bruno	43	60	87	75	59
6	SSF	34	59	86	74	55
7	Brisbane	2	37	80	71	58
8	Millbrae	31	54	86	72	63
9	Millbrae	9	45	84	73	57
10	Burlingame	6	42	84	71	57
11	Burlingame	8	47	87	72	54
12	Foster City	70	56	82	71	57
13	Hillsborough	2	39	87	71	58
14	SSF	26	54	83	72	58
15	SSF	27	48	81	70	59
16	SSF	25	53	82	71	56
17	SSF	21	53	83	71	57
18	Daly City	32	58	86	73	59
19	Pacifica	20	55	84	73	55
20	Daly City	2	33	82	73	58
21	San Francisco	2	33	77	68	58
22	San Bruno	13	50	84	73	60
23	San Francisco	5	40	81	70	61
24	San Francisco	2	36	82	71	59
25	San Francisco	3	32	75	64	54
26	San Francisco	2	34	81	68	59
27	San Francisco	2	33	79	69	56
28	Redwood City	3	39	85	70	50
29	San Mateo	4	44	87	73	56



Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along with daily average aircraft counts with the average Sound Exposure Level (SEL) and Maximum Level (LMax).

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

## Significant Exceedances



Note: Site 2 online starting 11/20/2019

# Operations

May 2020

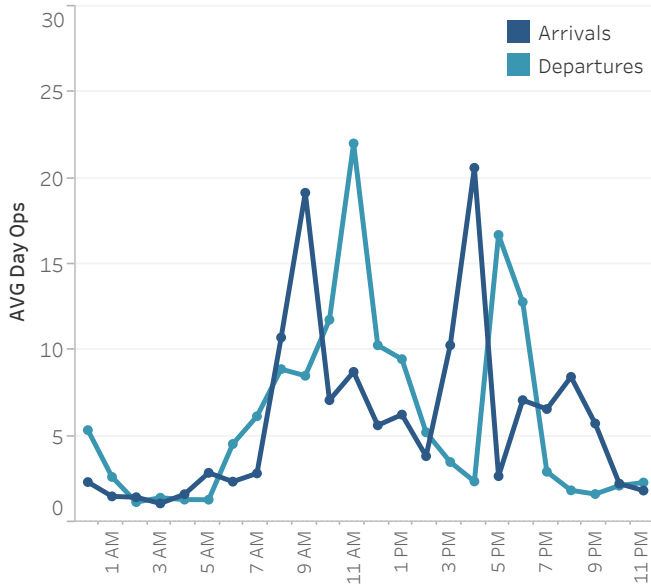
Monthly Ops    AVG Daily Ops    12 Month AVG    YOY Growth

8,718	281	32,398	-344%
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Major Arrival and Departure Routes (West Flow)



May 2020 Average Day (Hourly)



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

West Flow 97%

Top Destinations

Los Angeles	Las Vegas	Seattle
7%	5%	5%

Down the Bay vs Peninsula

1.1 BDEGA East	40%
1.2 BDEGA West	60%

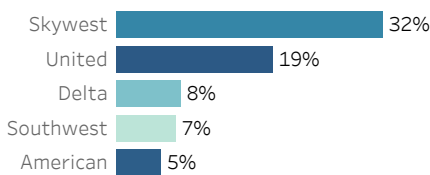
Arrival Route

1. BDEGA	28%
2. DYAMD	35%
3. SERFR	30%
4. PIRAT	7%

Departure Route

A. GAP	30%
B. SSTIK	23%
C. NIITE	4%
D. TRUKN RWY 01	30%
D. TRUKN RWY 28	13%

Airlines with the Most Operations



Non Airline

9%



Narrow Body

70%

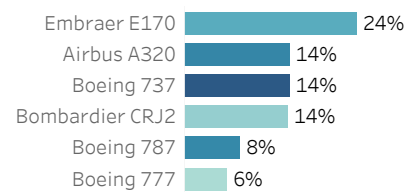


Wide Body

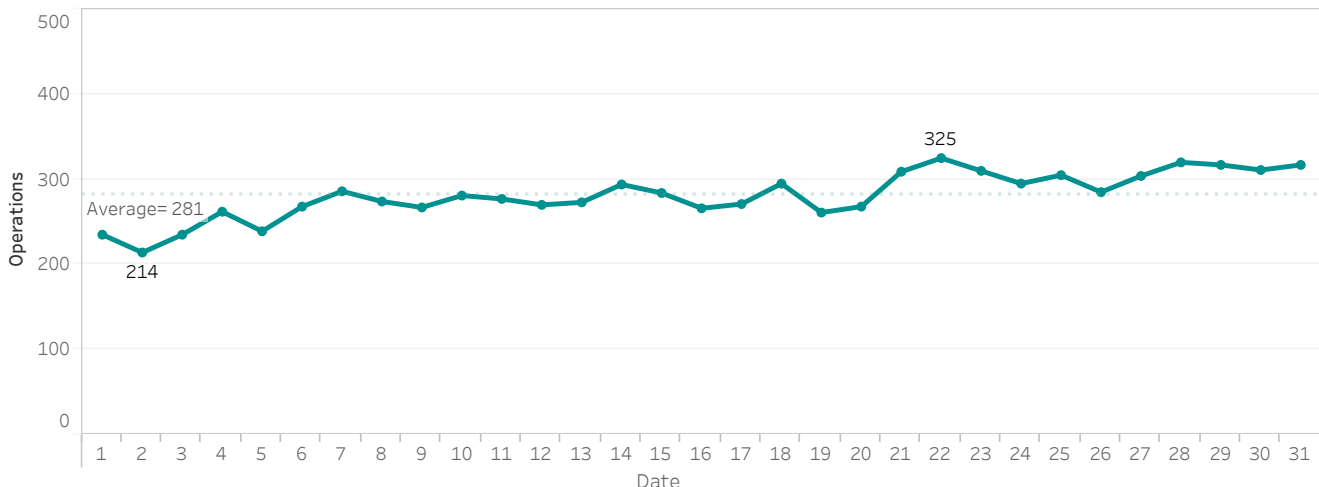
20%



Most Utilized Aircraft Types



Daily Aircraft Operations





# Runway Usage and Nighttime Operations

Monthly Runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airlines nighttime power runup counts shown below. Percent [%] is rounded to the nearest whole number.

## Runway Utilization

	Arrivals	Departures
01 L/R		58% 2,334
10 L/R		2% 90
19 L/R	3% 137	1% 49
28 L/R	97% 3,892	39% 1,560

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

	Departures
10 L/R	4% 5
01 L/R	8% 11
28 L/R	88% 114

## Runway Utilization

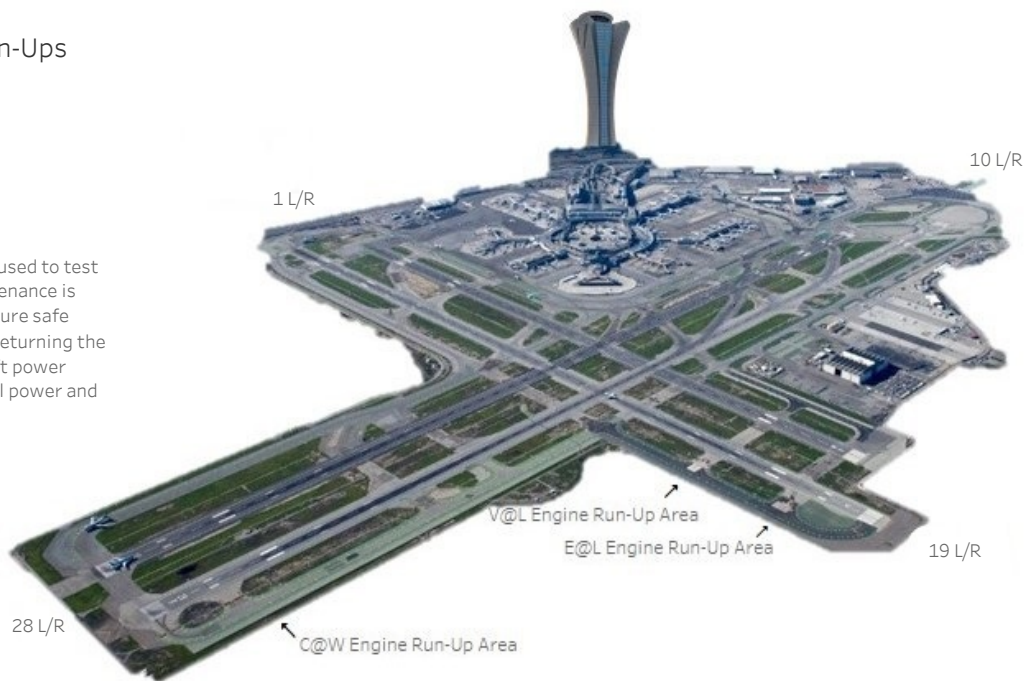
Arrivals	
28L	28R
41%	59%
Night (10pm-7am)	
20%	80%

## Nighttime Power Run-Ups

10pm-7am

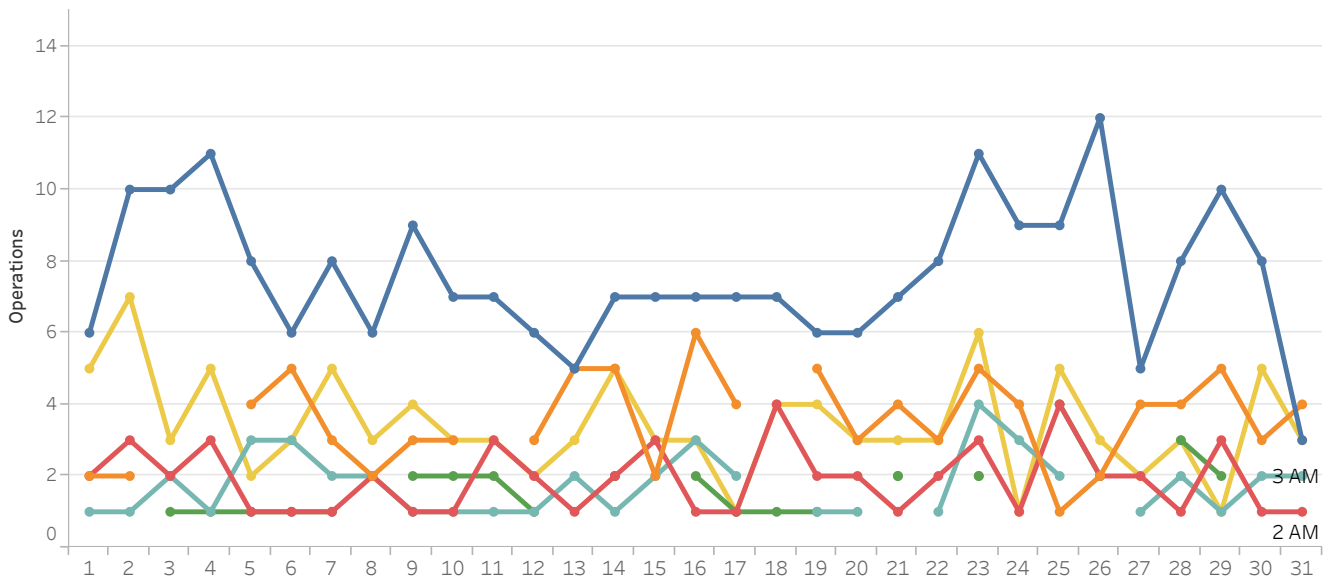
- Alaska Airlines 1
- American Airlines 3
- United Airlines 1

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



## Hourly Nighttime Operations

Hour 12 AM 1 AM 2 AM 3 AM 4 AM 5 AM



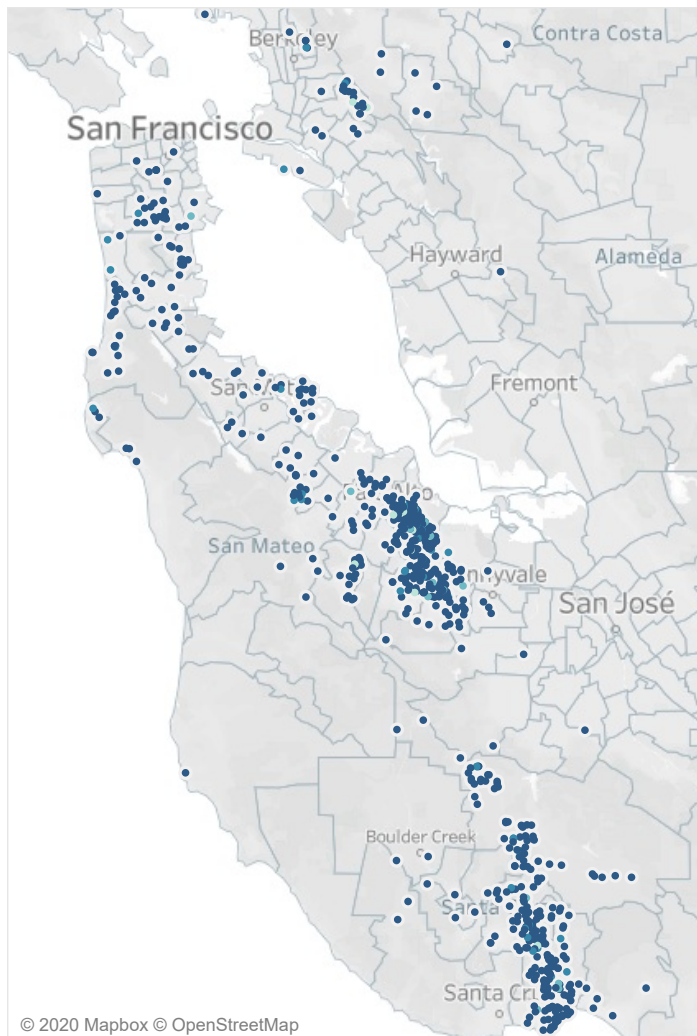
# Noise Reports

Noise Reporters / Noise Reports

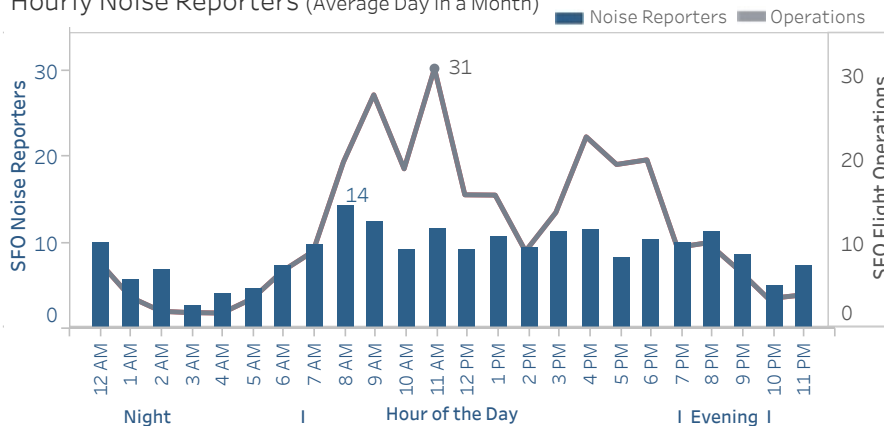
<b>Roundtable</b>		
Atherton	4	298
Belmont	1	44
Brisbane	13	300
Burlingame	4	23
Daly City	5	526
El Granada	1	176
Foster City	12	45
Half Moon Bay	2	2
Hillsborough	1	4
Menlo Park	22	1,162
Millbrae	2	4
Montara	3	312
Pacifica	19	726
Portola Valley	27	17,344
Redwood City	11	545
San Bruno	6	143
San Carlos	4	44
San Francisco	28	1,681
San Mateo	10	563
South San Francisco	6	14
Woodside	6	608
<b>Other</b>		
Alameda	2	406
Aptos	5	63
Ben Lomond	2	8
Berkeley	5	529
Bonny Doon	2	4
Boulder Creek	1	1
Capitola	13	481
Carmel Valley	1	13
Cupertino	2	183
East Palo Alto	2	52
Emerald Hills	8	418
Felton	6	245
Hayward	1	101
La Selva Beach	1	1
Lafayette	1	22
Los Altos	87	6,741
Los Altos Hills	21	3,109
Los Gatos	66	5,122
Moraga	4	276
Mountain View	20	2,013
Oakland	21	2,857
Orinda	2	21
Palo Alto	154	19,156
Penngrove	1	14
Pescadero	1	1
Richmond	4	1,057
Santa Cruz	83	5,768
Saratoga	1	154
Scotts Valley	51	2,792
Soquel	48	2,959
Stanford	3	297
Sunnyvale	4	77
Watsonville	1	156
<b>Grand Total</b>	<b>811</b>	<b>79,661</b>

Reporters Annual AVG	1,009
Reports Annual AVG	156,424
New Reporters	28
New Reporters Top City	San Francisco
Furthest Report	88 miles
Reports per SFO Operation	9
Top Aircraft Types	E75L B737 A320
Top Flight Numbers	KAL214 AAR286 CAL5107

Noise Reporters Location Map

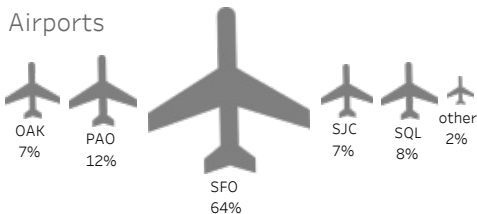


Hourly Noise Reporters (Average Day in a Month)



Notes: Address validation Relies on USPS-provided ZIP Code  
look up table and USPS-specified default city values.

## Airports



97% of noise reports correlate to a flight origin/destination airport.

Source: SFO Intl Airport Noise Monitoring System





# Airport Director's Report

Presented at the October 7, 2020  
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office  
June 2020



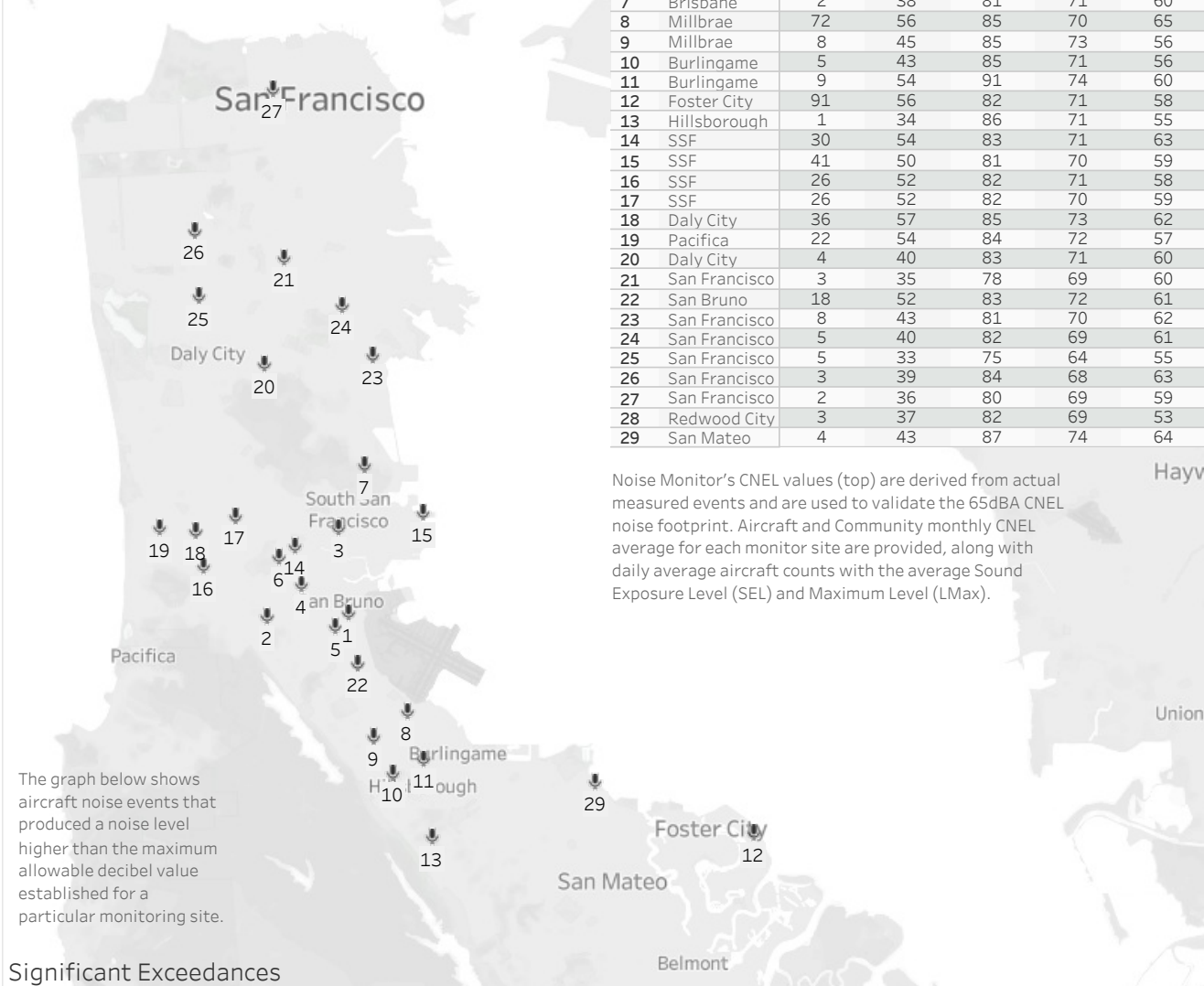
San Francisco  
International  
Airport

# Aircraft Noise Levels

June 2020

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

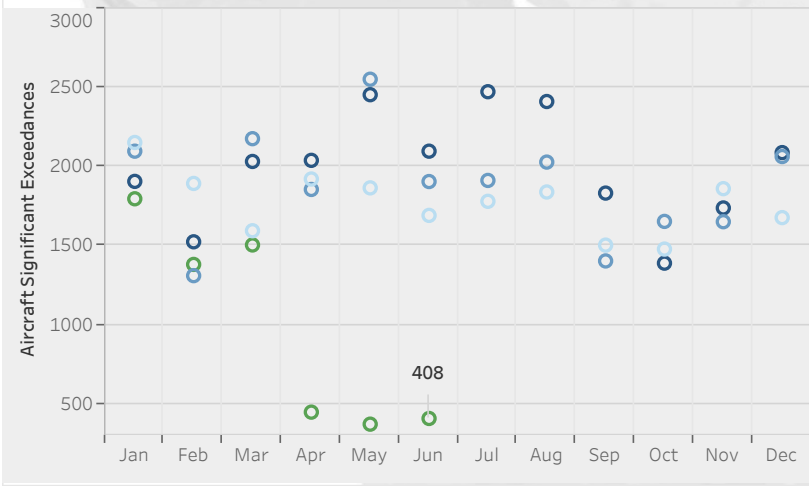
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2	San Bruno	5	43	81	71	62
3	SSF	8	45	82	71	68
4	SSF	45	61	88	76	59
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12	Foster City	91	56	82	71	58
13	Hillsborough	1	34	86	71	55
14	SSF	30	54	83	71	63
15	SSF	41	50	81	70	59
16	SSF	26	52	82	71	58
17	SSF	26	52	82	70	59
18	Daly City	36	57	85	73	62
19	Pacifica	22	54	84	72	57
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28	Redwood City	3	37	82	69	53
29	San Mateo	4	43	87	74	64



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

## Significant Exceedances



Note: Site 2 online starting 11/20/2019

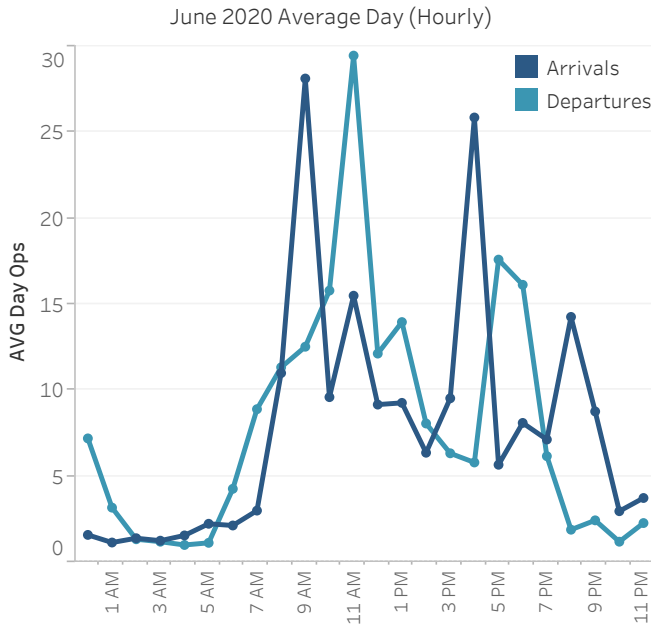
# Operations

June 2020

Monthly Ops    AVG Daily Ops    12 Month AVG    YOY Growth

11,273	376	30,016	-253%
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Major Arrival and Departure Routes (West Flow)



West Flow is depicted in the above image and is a predominate flow at SFO. West Flow 100%

Top Destinations

Los Angeles	Las Vegas	Seattle
9%	5%	5%

Down the Bay vs Peninsula

1.1 BDEGA East	37%
1.2 BDEGA West	63%

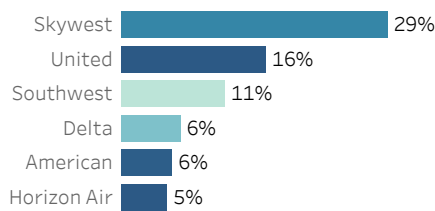
Arrival Route

1. BDEGA	27%
2. DYAMD	37%
3. SERFR	32%
4. PIRAT	5%

Departure Route

A. GAP	27%
B. SSTIK	25%
C. NIITE	4%
D. TRUKN RWY 01	31%
D. TRUKN RWY 28	13%

Airlines with the Most Operations



Non Airline

10%



Narrow Body

74%

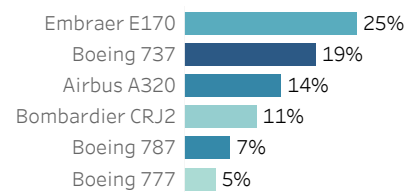


Wide Body

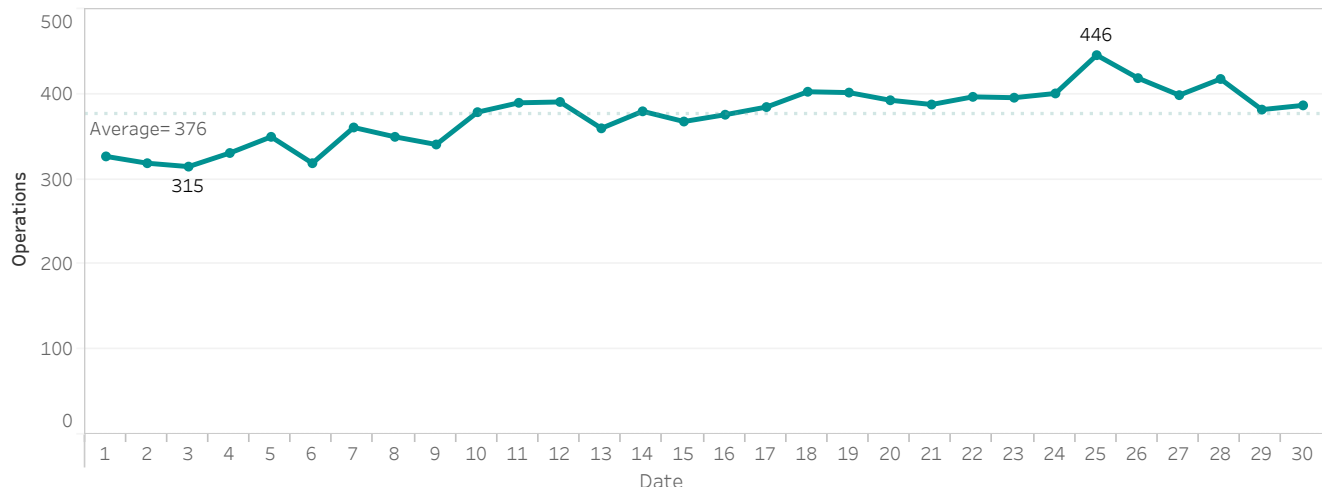
16%



Most Utilized Aircraft Types



Daily Aircraft Operations



# Runway Usage and Nighttime Operations

Monthly Runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airlines nighttime power runup counts shown below. Percent [%] is rounded to the nearest whole number.

## Runway Utilization

	Arrivals	Departures
01 L/R		63% 3,267
10 L/R		0% 7
28 L/R	100% 5,145	37% 1,883

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

	Departures
10 L/R	2% 3
01 L/R	18% 23
28 L/R	80% 102

## Runway Utilization

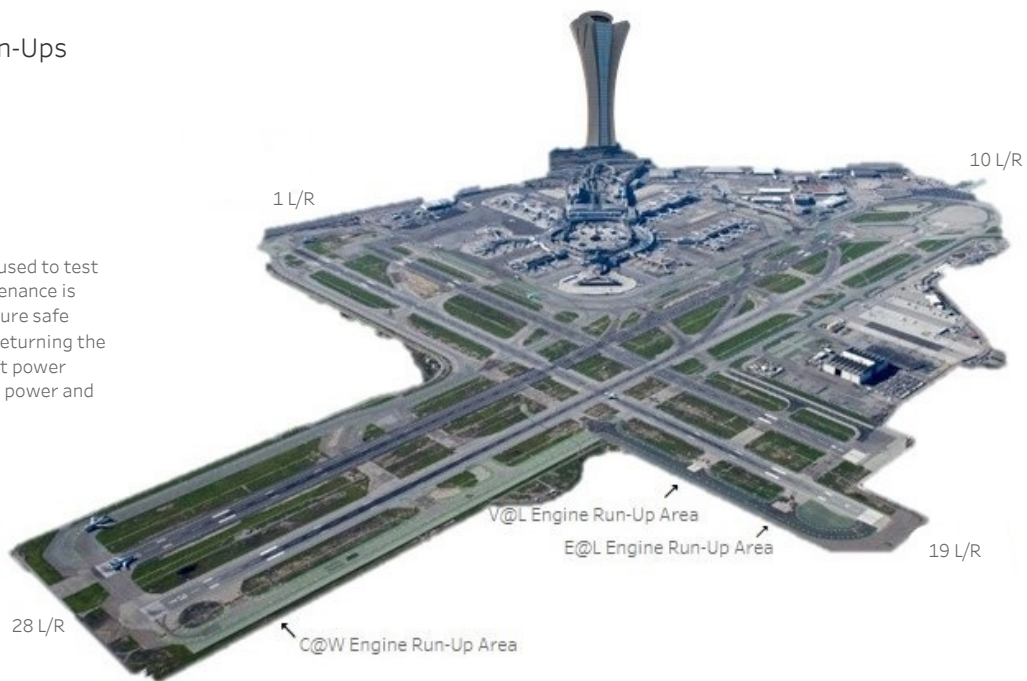
Arrivals	
28L	28R
45%	55%
Night (10pm-7am)	
23%	77%

## Nighttime Power Run-Ups

10pm-7am

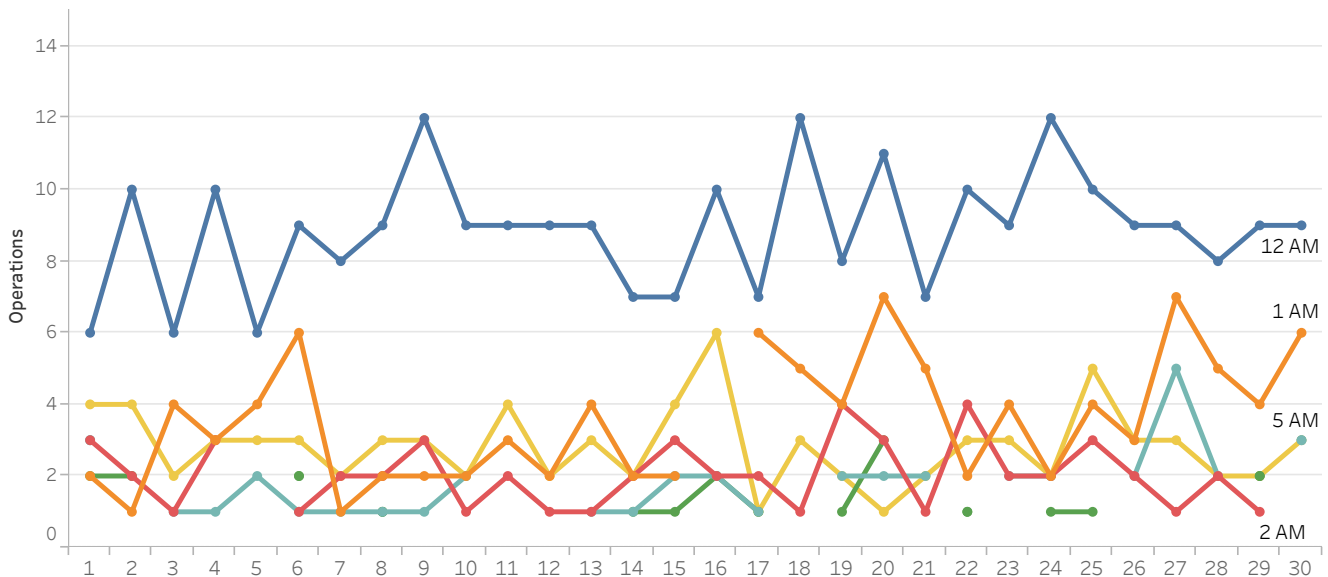
- Alaska Airlines 1
- American Airlines 9
- United Airlines 7

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



## Hourly Nighttime Operations

Hour 12 AM 1 AM 2 AM 3 AM 4 AM 5 AM





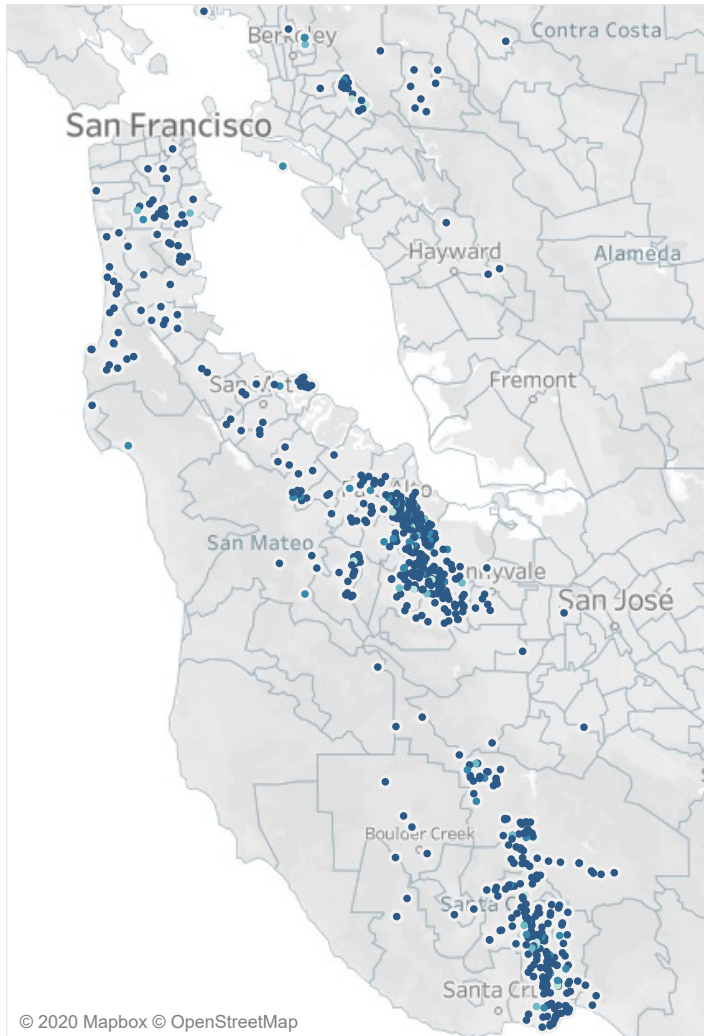
# Noise Reports

Noise Reporters / Noise Reports

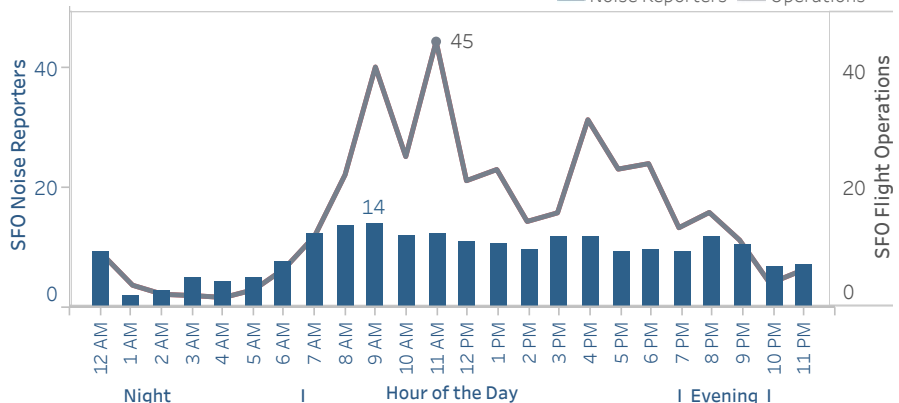
	Reporters	Noise Reports
<b>Roundtable</b>		
Atherton	5	569
Belmont	2	76
Brisbane	10	229
Burlingame	1	34
Daly City	6	418
El Granada	1	482
Foster City	9	127
Hillsborough	1	14
Menlo Park	23	1,454
Montara	1	110
Pacifica	17	807
Portola Valley	28	16,362
Redwood City	8	532
San Bruno	6	148
San Carlos	3	61
San Francisco	23	2,470
San Mateo	10	799
South San Francisco	3	7
Woodside	6	897
<b>Other</b>		
Alameda	1	366
Aptos	3	23
Berkeley	4	1,106
Bonny Doon	2	2
Boulder Creek	4	24
Capitola	12	552
Carmel Valley	1	5
Castro Valley	1	11
Cupertino	1	120
East Palo Alto	2	13
Emerald Hills	7	484
Felton	7	308
Hayward	2	228
La Honda	1	6
La Selva Beach	1	1
Lafayette	2	22
Los Altos	95	8,063
Los Altos Hills	24	3,978
Los Gatos	71	7,082
Moraga	6	309
Mountain View	20	2,092
Oakland	16	3,915
Orinda	1	13
Palo Alto	159	19,745
Penngrove	1	7
Richmond	4	1,730
Santa Clara	1	5
Santa Cruz	82	7,993
Saratoga	1	216
Scotts Valley	46	3,895
Soquel	44	3,274
Stanford	3	394
Sunnyvale	6	139
Watsonville	1	145
<b>Grand Total</b>	<b>795</b>	<b>91,862</b>

- Reporters Annual AVG: 975
- Reports Annual AVG: 148,494
- New Reporters: 18
- New Reporters Top City: Palo Alto
- Furthest Report: 88 miles
- Reports per SFO Operation: 8
- Top Aircraft Types: E75L, B737, A320
- Top Flight Numbers: CAL5107, AAR284, DAL2564

Noise Reporters Location Map

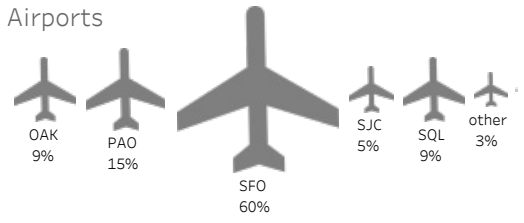


Hourly Noise Reporters (Average Day in a Month)



Notes: Address validation Relies on USPS-provided ZIP Code look up table and USPS-specified default city values.

## Airports



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

Source: SFO Intl Airport Noise Monitoring System



# Airport Director's Report

Presented at the October 7, 2020  
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office  
July 2020



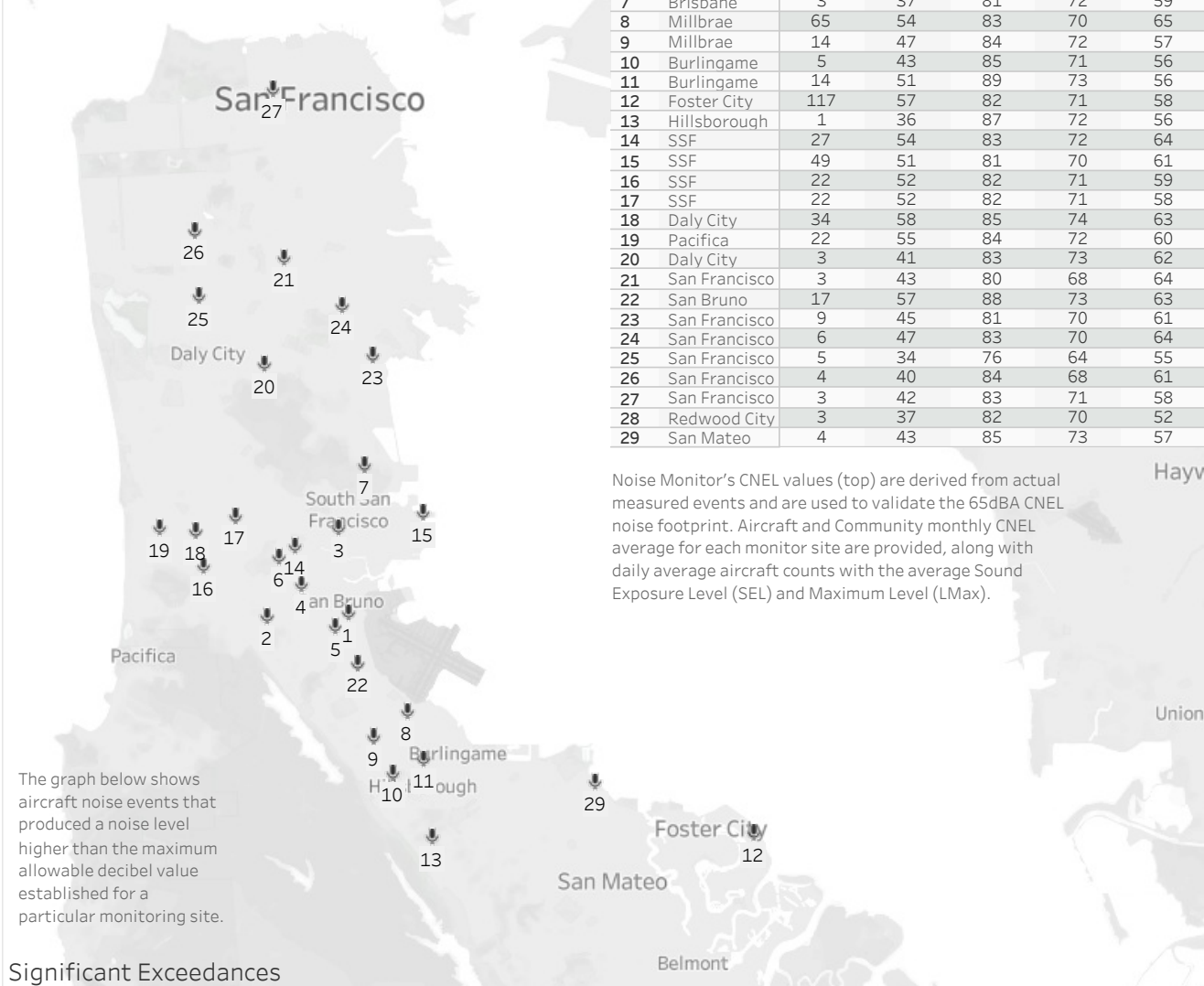
San Francisco  
International  
Airport

# Aircraft Noise Levels

July 2020

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

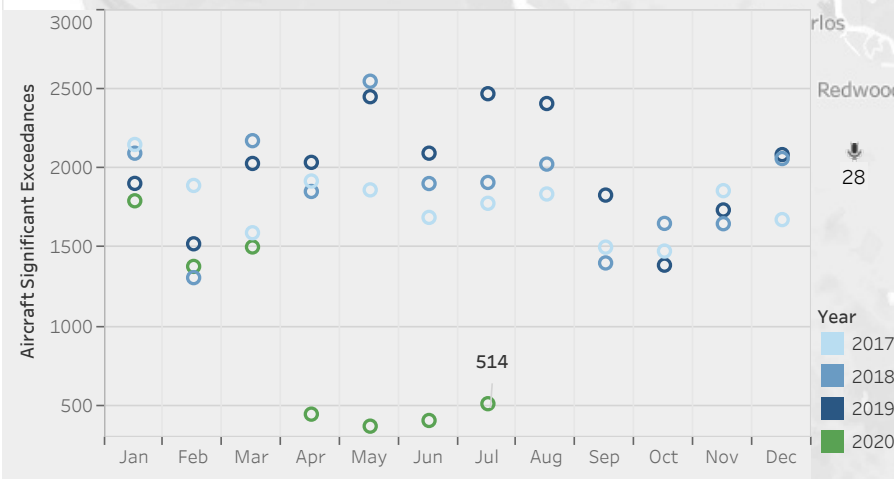
Site	City	Noise Events (AVG Day)	Aircraft		Community	
			CNEL (dBA)	SEL (dBA)	LMax (dBA)	CNEL (dBA)
1	San Bruno	64	68	92	79	74
2	San Bruno	5	42	81	71	62
3	SSF	7	57	89	71	66
4	SSF	41	62	89	77	58
5	San Bruno	47	61	87	76	63
6	SSF	35	59	87	75	56
7	Brisbane	3	37	81	72	59
8	Millbrae	65	54	83	70	65
9	Millbrae	14	47	84	72	57
10	Burlingame	5	43	85	71	56
11	Burlingame	14	51	89	73	56
12	Foster City	117	57	82	71	58
13	Hillsborough	1	36	87	72	56
14	SSF	27	54	83	72	64
15	SSF	49	51	81	70	61
16	SSF	22	52	82	71	59
17	SSF	22	52	82	71	58
18	Daly City	34	58	85	74	63
19	Pacifica	22	55	84	72	60
20	Daly City	3	41	83	73	62
21	San Francisco	3	43	80	68	64
22	San Bruno	17	57	88	73	63
23	San Francisco	9	45	81	70	61
24	San Francisco	6	47	83	70	64
25	San Francisco	5	34	76	64	55
26	San Francisco	4	40	84	68	61
27	San Francisco	3	42	83	71	58
28	Redwood City	3	37	82	70	52
29	San Mateo	4	43	85	73	57



Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along with daily average aircraft counts with the average Sound Exposure Level (SEL) and Maximum Level (LMax).

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

## Significant Exceedances



Note: Site 2 online starting 11/20/2019

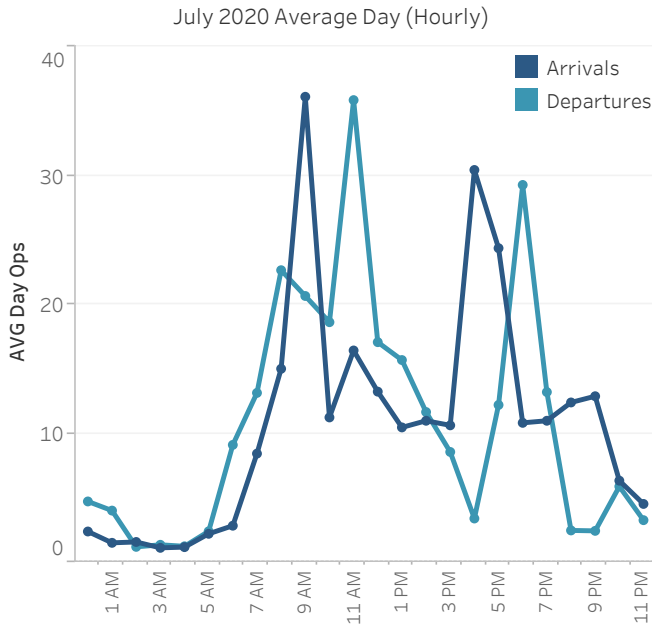
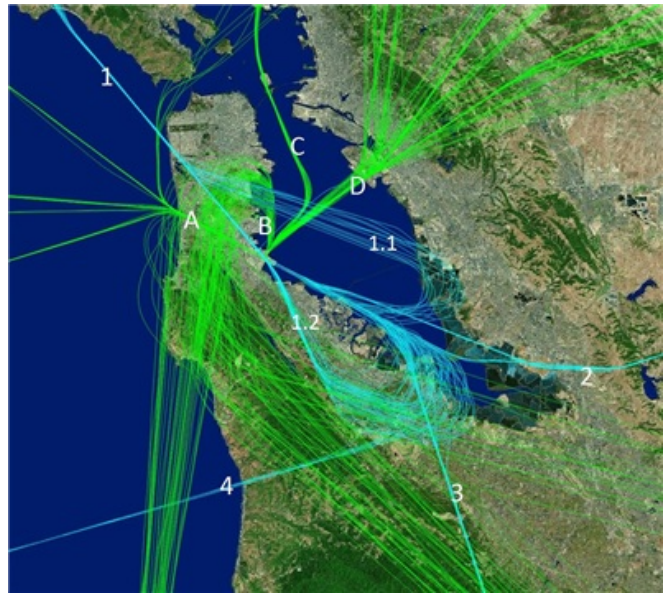
# Operations

July 2020

Monthly Ops    AVG Daily Ops    12 Month AVG    YOY Growth

16,037	517	27,866	-161%
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Major Arrival and Departure Routes (West Flow)



West Flow is depicted in the above image and is a predominate flow at SFO. West Flow 100%

Top Destinations

Los Angeles	Seattle	San Diego
8%	5%	5%

Down the Bay vs Peninsula

1.1 BDEGA East	36%
1.2 BDEGA West	64%

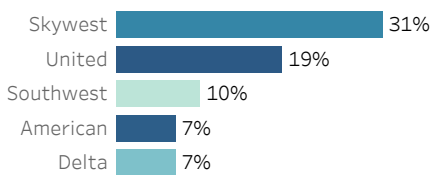
Arrival Route

1. BDEGA	28%
2. DYAMD	38%
3. SERFR	30%
4. PIRAT	4%

Departure Route

A. GAP	17%
B. SSTIK	29%
C. NIITE	6%
D. TRUKN RWY 01	42%
D. TRUKN RWY 28	6%

Airlines with the Most Operations



Non Airline

9%



Narrow Body

78%

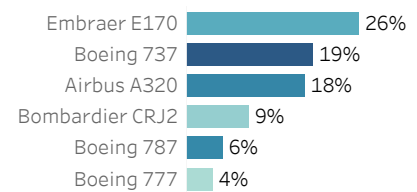


Wide Body

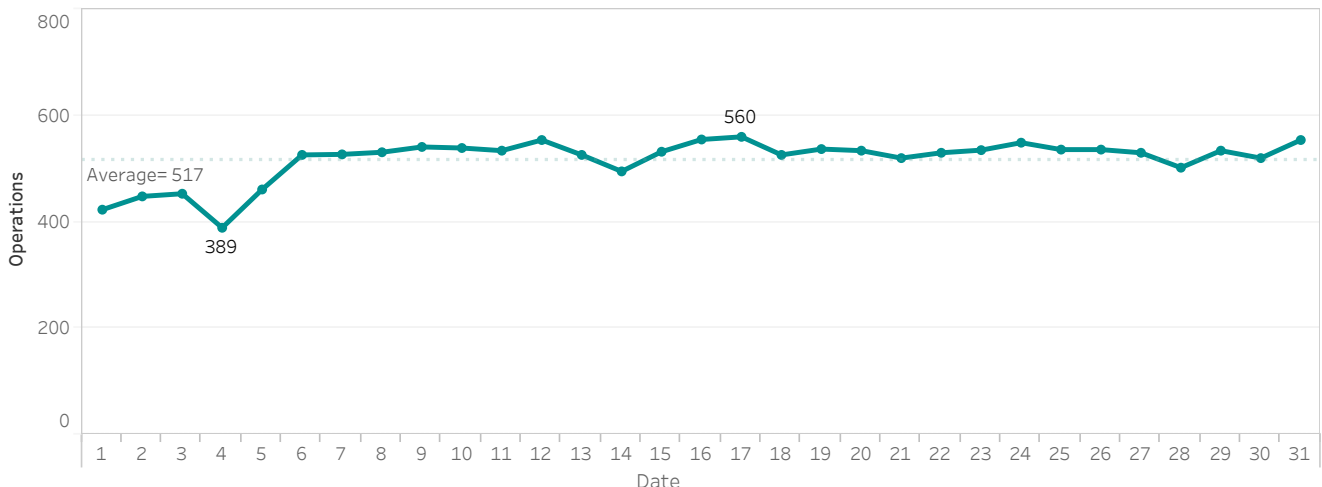
13%



Most Utilized Aircraft Types



Daily Aircraft Operations





# Runway Usage and Nighttime Operations

Monthly Runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airlines nighttime power runup counts shown below. Percent [%] is rounded to the nearest whole number.

## Runway Utilization

	Arrivals	Departures
01 L/R		80% 5,938
10 L/R		0% 1
19 L/R	0% 2	
28 L/R	100% 7,403	20% 1,484

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

	Departures
10 L/R	0% 1
01 L/R	28% 63
28 L/R	72% 163

## Runway Utilization

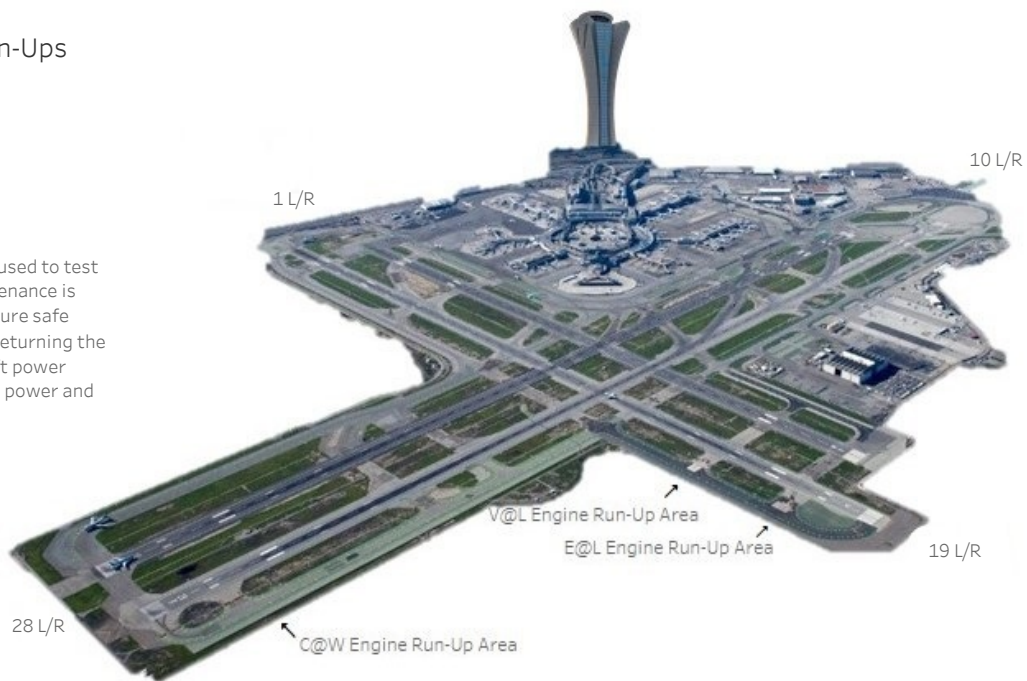
Arrivals	
28L	28R
40%	60%
Night (10pm-7am)	
11%	89%

## Nighttime Power Run-Ups

10pm-7am

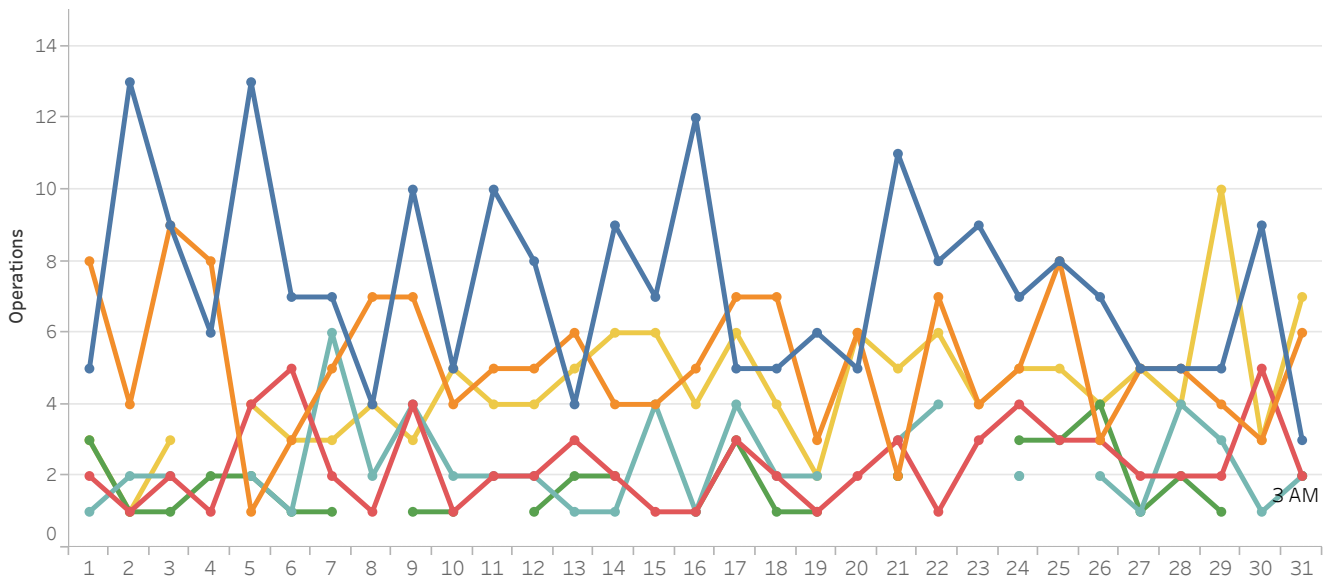
Alaska Airlines	1
American Airlines	6
United Airlines	3

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



## Hourly Nighttime Operations

Hour 12 AM 1 AM 2 AM 3 AM 4 AM 5 AM



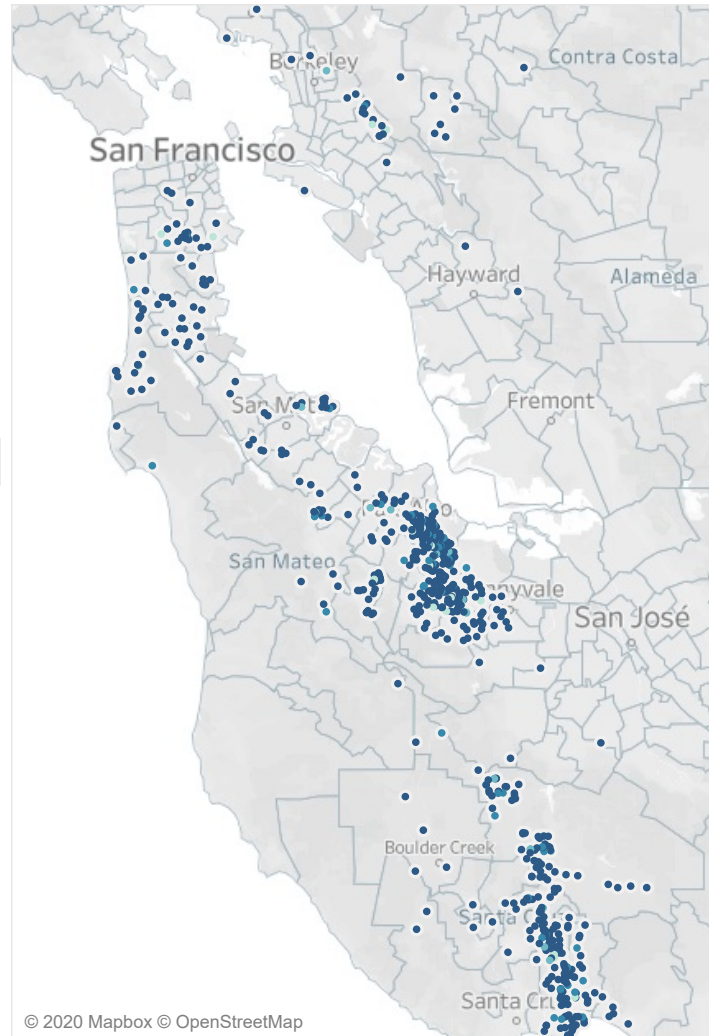
# Noise Reports

Noise Reporters / Noise Reports

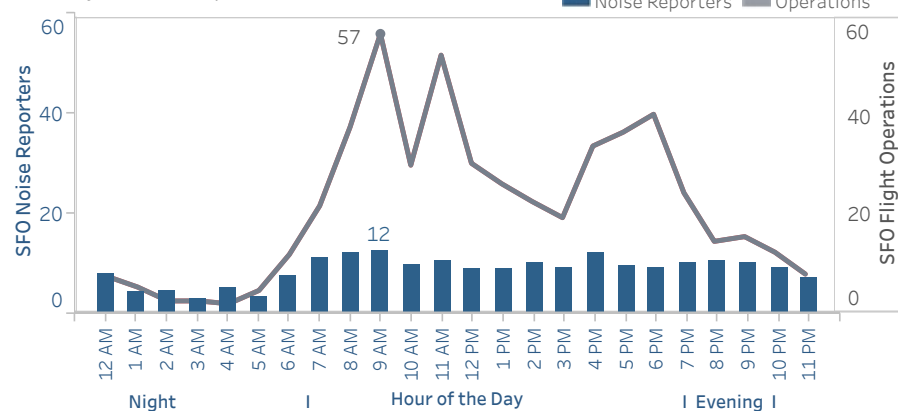
	Reporters	Noise Reports
<b>Roundtable</b>		
Atherton	4	1,068
Belmont	3	82
Brisbane	7	287
Burlingame	1	1
Daly City	5	503
El Granada	1	347
Foster City	8	359
Hillsborough	1	11
Menlo Park	22	1,289
Millbrae	1	1
Montara	1	46
Pacifica	17	756
Portola Valley	29	17,197
Redwood City	7	712
San Bruno	6	148
San Carlos	2	77
San Francisco	20	3,138
San Mateo	10	871
South San Francisco	9	15
Woodside	6	954
<b>Other</b>		
Alameda	1	1
Albany	1	1
Aptos	5	12
Ben Lomond	1	1
Berkeley	4	1,067
Bonny Doon	2	12
Boulder Creek	3	9
Capitola	11	709
Castro Valley	1	6
Cupertino	2	225
East Palo Alto	3	292
Emerald Hills	7	1,021
Felton	6	347
Hayward	1	156
La Honda	1	5
Lafayette	2	52
Los Altos	85	9,397
Los Altos Hills	22	4,228
Los Gatos	70	7,298
Moraga	5	202
Mountain View	21	2,788
Oakland	13	4,769
Orinda	1	16
Palo Alto	158	23,221
Penngrove	1	8
Richmond	4	2,187
Santa Cruz	66	8,661
Saratoga	1	143
Scotts Valley	46	3,701
Sonoma	1	1
Soquel	41	4,136
Stanford	3	414
Sunnyvale	7	185
Watsonville	1	143
<b>Grand Total</b>	<b>757</b>	<b>103,276</b>

Reporters Annual AVG	942
Reports Annual AVG	140,320
New Reporters	17
New Reporters Top City	Palo Alto
Furthest Report	64 miles
Reports per SFO Operation	6
Top Aircraft Types	E75L B737 A320
Top Flight Numbers	UAL634 AAR284 KAL214

Noise Reporters Location Map

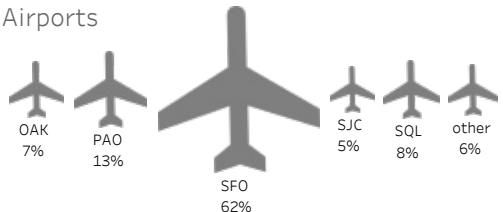


Hourly Noise Reporters (Average Day in a Month)



Notes: Address validation Relies on USPS-provided ZIP Code look up table and USPS-specified default city values.

## Airports



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

Source: SFO Intl Airport Noise Monitoring System



# Airport Director's Report

Presented at the October 7, 2020  
Airport Community Roundtable Meeting

Aircraft Noise Abatement Office  
August 2020



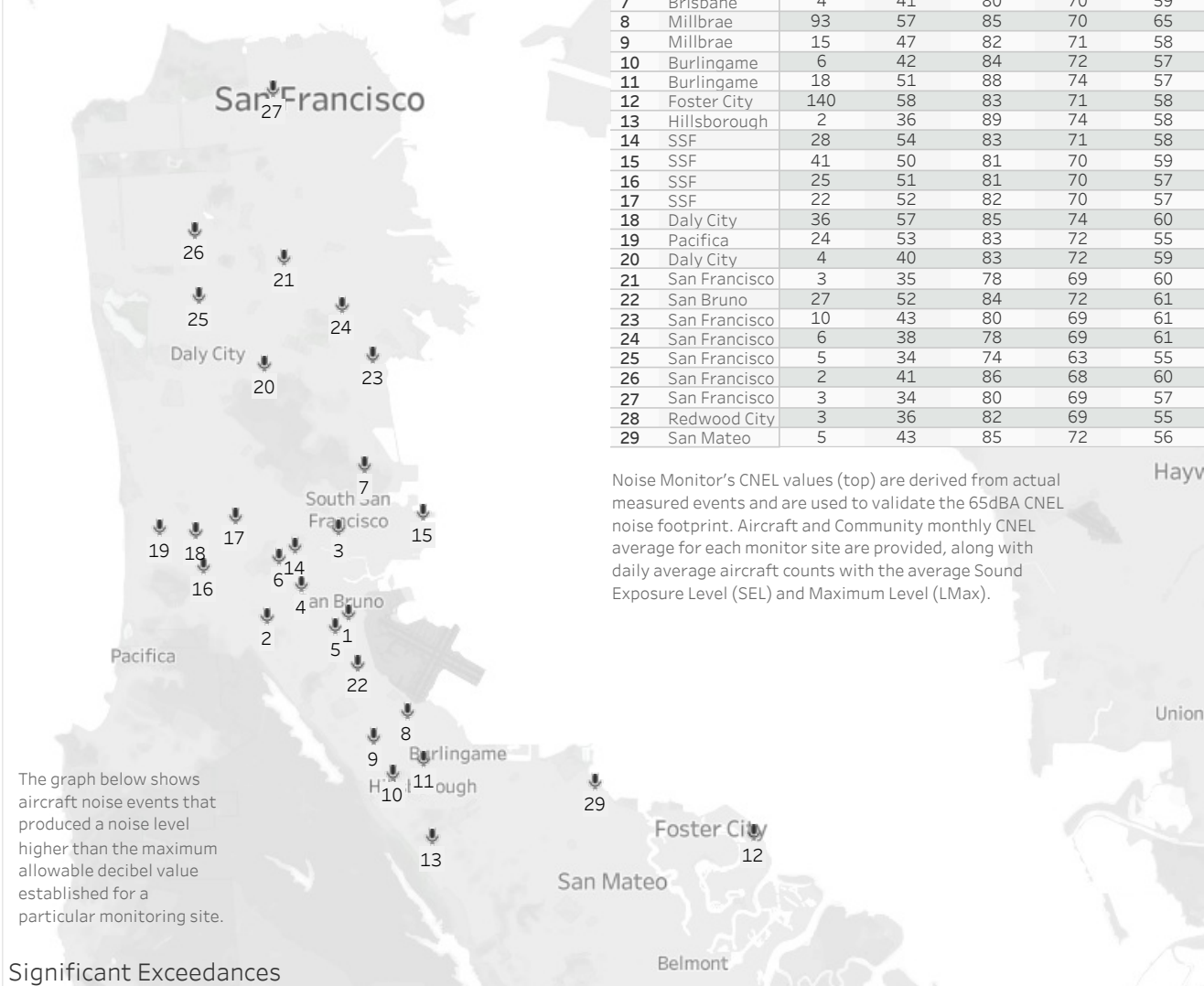
San Francisco  
International  
Airport

# Aircraft Noise Levels

August 2020

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

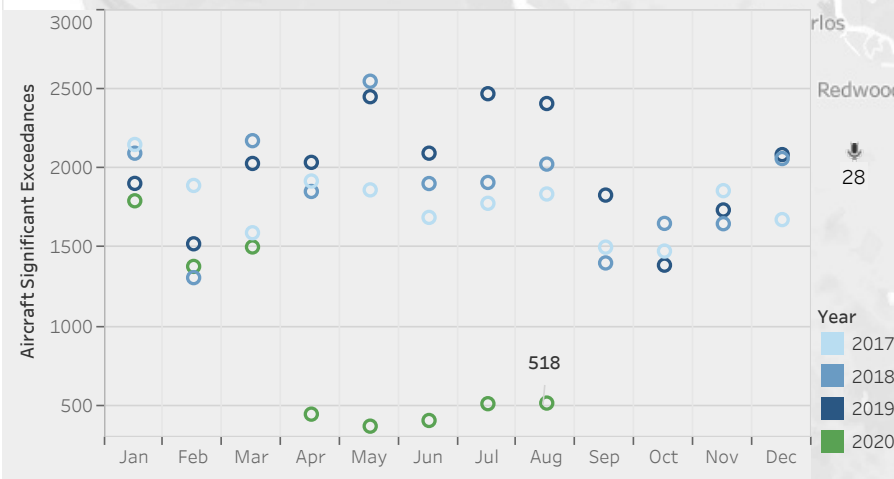
Site	City	Noise Events (AVG Day)	Aircraft		Community	
			CNEL (dBA)	SEL (dBA)	LMax (dBA)	CNEL (dBA)
1	San Bruno	76	67	91	78	66
2	San Bruno	4	41	81	71	62
3	SSF	10	48	81	70	60
4	SSF	44	62	89	76	59
5	San Bruno	48	60	86	75	60
6	SSF	38	59	86	74	57
7	Brisbane	4	41	80	70	59
8	Millbrae	93	57	85	70	65
9	Millbrae	15	47	82	71	58
10	Burlingame	6	42	84	72	57
11	Burlingame	18	51	88	74	57
12	Foster City	140	58	83	71	58
13	Hillsborough	2	36	89	74	58
14	SSF	28	54	83	71	58
15	SSF	41	50	81	70	59
16	SSF	25	51	81	70	57
17	SSF	22	52	82	70	57
18	Daly City	36	57	85	74	60
19	Pacifica	24	53	83	72	55
20	Daly City	4	40	83	72	59
21	San Francisco	3	35	78	69	60
22	San Bruno	27	52	84	72	61
23	San Francisco	10	43	80	69	61
24	San Francisco	6	38	78	69	61
25	San Francisco	5	34	74	63	55
26	San Francisco	2	41	86	68	60
27	San Francisco	3	34	80	69	57
28	Redwood City	3	36	82	69	55
29	San Mateo	5	43	85	72	56



Noise Monitor's CNEL values (top) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft and Community monthly CNEL average for each monitor site are provided, along with daily average aircraft counts with the average Sound Exposure Level (SEL) and Maximum Level (LMax).

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

## Significant Exceedances



Note: Site 2 online starting 11/20/2019



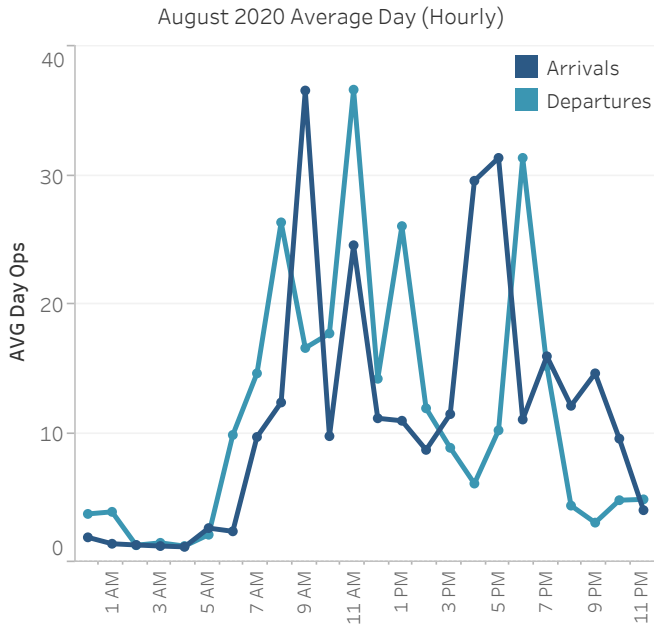
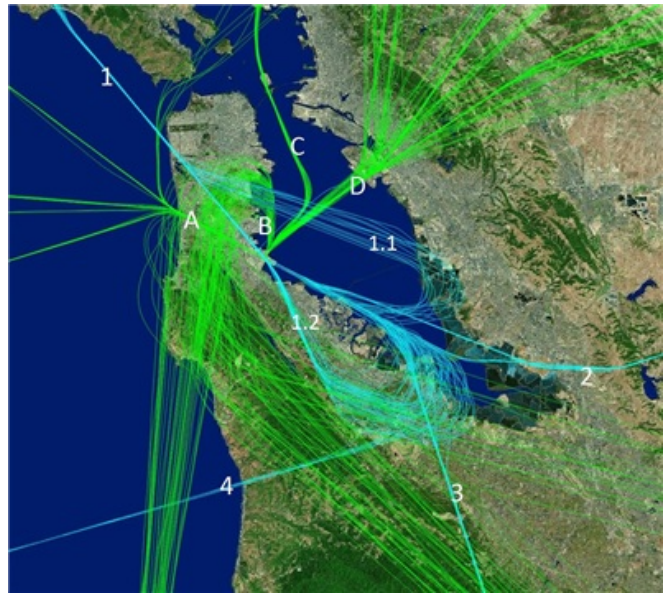
# Operations

August 2020

Monthly Ops    AVG Daily Ops    12 Month AVG    YOY Growth

17,147	553	25,611	-158%
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Major Arrival and Departure Routes (West Flow)



West Flow is depicted in the above image and is a predominate flow at SFO. West Flow 100%

Top Destinations

Los Angeles	Seattle	Denver
8%	6%	4%

Down the Bay vs Peninsula

1.1 BDEGA East	33%
1.2 BDEGA West	67%

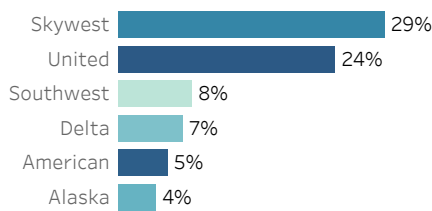
Arrival Route

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3. SERFR	29%
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Departure Route

A. GAP	18%
B. SSTIK	28%
C. NIITE	7%
D. TRUKN RWY 01	42%
D. TRUKN RWY 28	6%

Airlines with the Most Operations



Non Airline

9%



Narrow Body

78%

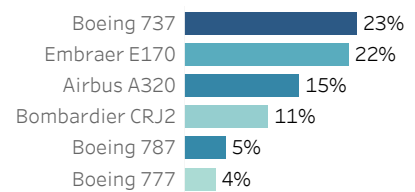


Wide Body

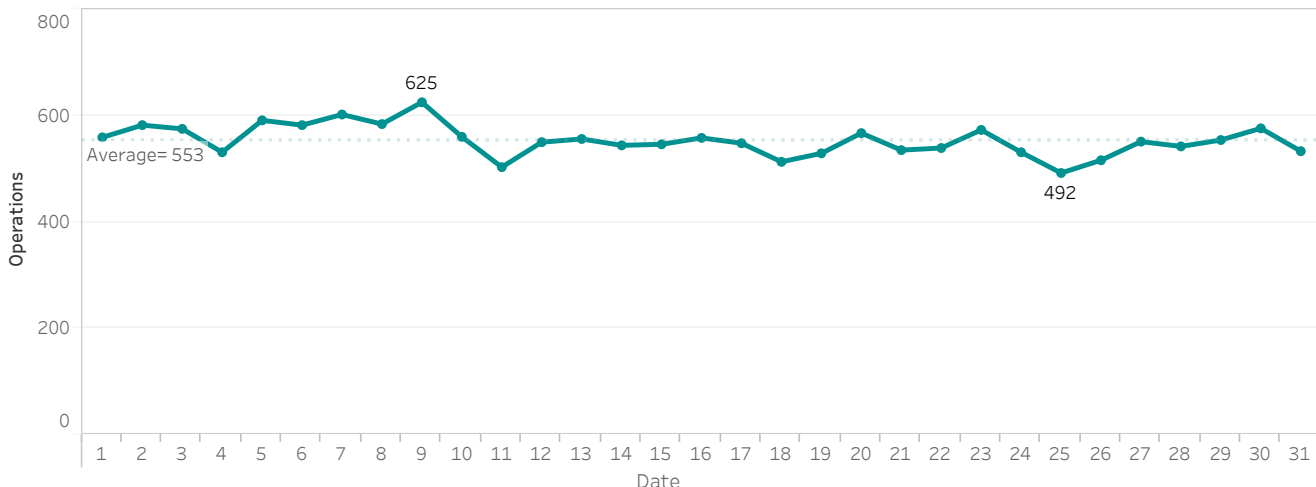
13%



Most Utilized Aircraft Types



Daily Aircraft Operations



# Runway Usage and Nighttime Operations

Monthly Runway usage is shown for arrivals and departures, further categorized by all hours and nighttime hours. Graph at the bottom of the page shows hourly nighttime operations for each day. Power Runup locations are depicted on the airport map with airlines nighttime power runup counts shown below. Percent [%] is rounded to the nearest whole number.

## Runway Utilization

	Arrivals	Departures
01 L/R		80% 6,317
10 L/R		0% 6
19 L/R	0% 1	
28 L/R	100% 7,869	20% 1,559

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

	Departures
10 L/R	2% 5
01 L/R	26% 61
28 L/R	72% 172

## Runway Utilization

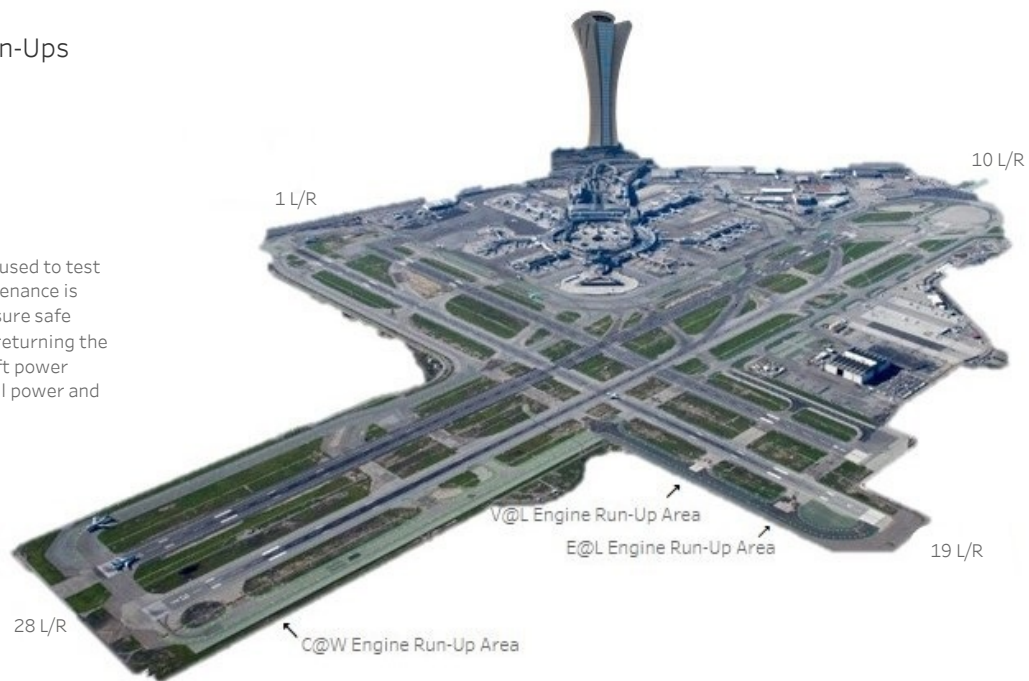
Arrivals	
28L	28R
35%	65%
Night (10pm-7am)	
4%	96%

## Nighttime Power Run-Ups

10pm-7am

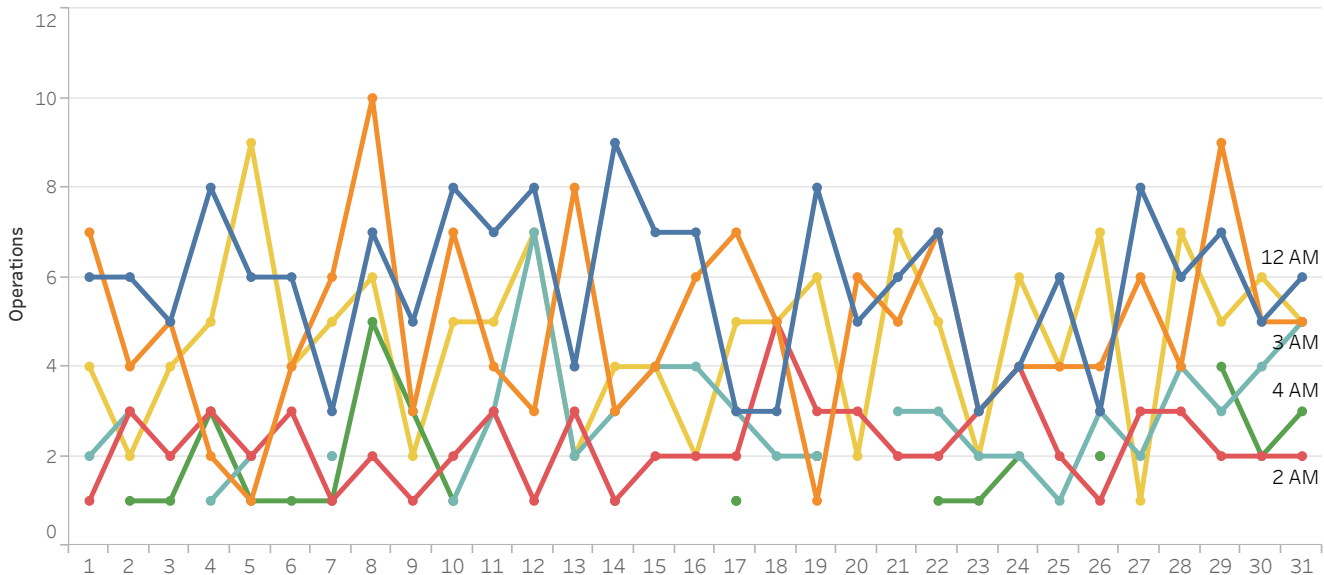
- Alaska Airlines 1
- American Airlines 4
- Delta Airlines 1
- United Airlines 3

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## Hourly Nighttime Operations

Hour 12 AM 1 AM 2 AM 3 AM 4 AM 5 AM



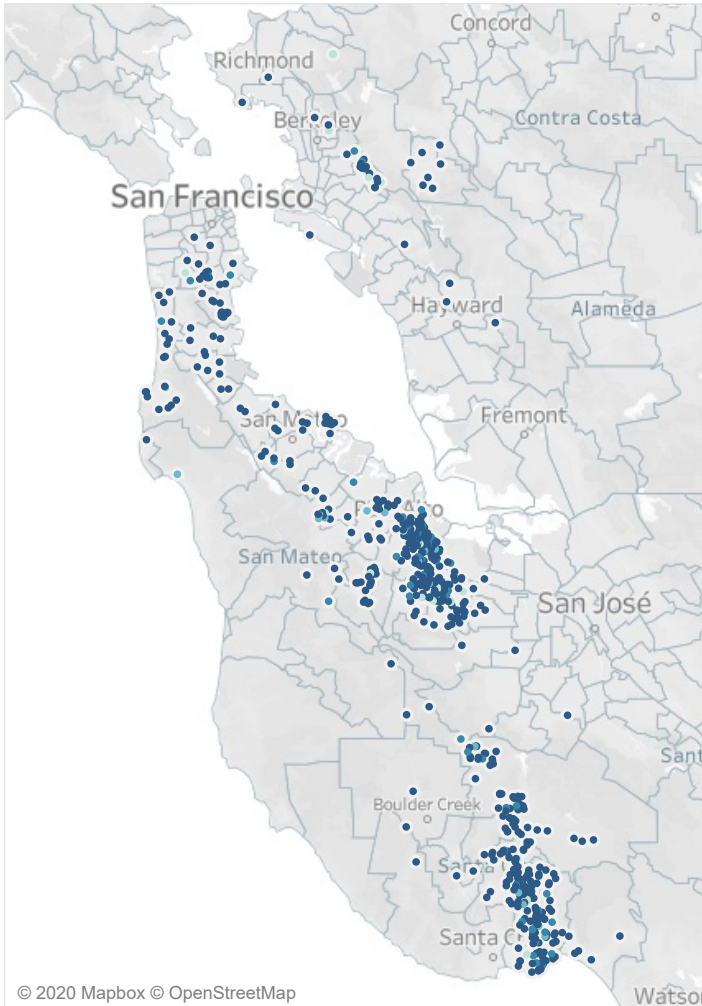
# Noise Reports

Noise Reporters / Noise Reports

<b>Roundtable</b>	Atherton	5	937
	Belmont	2	127
	Brisbane	11	369
	Burlingame	2	67
	Daly City	6	707
	El Granada	1	584
	Foster City	8	155
	Hillsborough	1	11
	Menlo Park	18	1,395
	Millbrae	2	6
	Montara	1	217
	Pacifica	14	884
	Portola Valley	29	13,271
	Redwood City	6	1,101
	San Bruno	4	69
	San Carlos	2	117
	San Francisco	19	2,590
	San Mateo	10	688
	South San Francisco	6	19
	Woodside	6	1,003
<b>Other</b>	Alameda	1	136
	Aptos	5	76
	Berkeley	5	1,577
	Bonny Doon	1	4
	Boulder Creek	1	2
	Capitola	10	829
	Carmel Valley	1	10
	Castro Valley	2	10
	Cupertino	2	37
	East Palo Alto	3	352
	Emerald Hills	8	2,720
	Felton	7	349
	Hayward	1	99
	La Honda	1	4
	Lafayette	1	2
	Los Altos	77	9,037
	Los Altos Hills	21	3,659
	Los Gatos	62	5,891
	Moraga	5	213
	Mountain View	19	2,193
	Oakland	17	4,926
	Orinda	1	1
	Palo Alto	146	21,741
	Penngrove	1	12
	Richmond	4	2,339
	Santa Cruz	79	10,862
	Saratoga	1	180
	Scotts Valley	51	3,924
	Soquel	45	4,229
	Stanford	3	533
	Sunnyvale	4	69
	Watsonville	1	119
	<b>Grand Total</b>	<b>739</b>	<b>100,452</b>

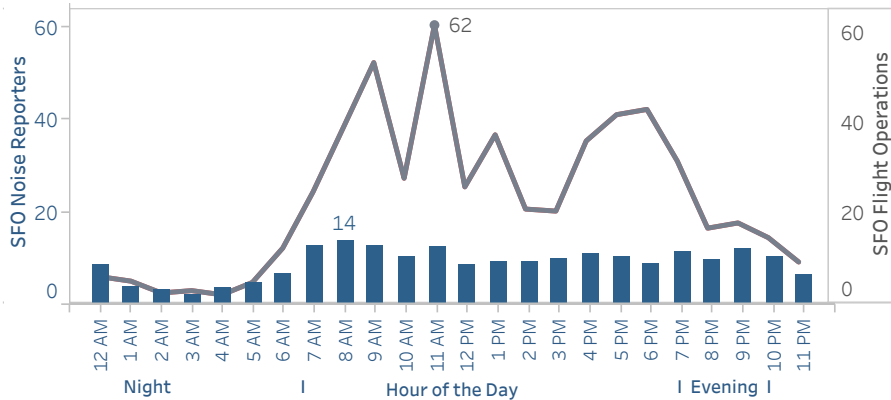
Reporters Annual AVG	904
Reports Annual AVG	131,893
New Reporters	11
New Reporters Top City	*See below
Furthest Report	88 miles
Reports per SFO Operation	6
Top Aircraft Types	E75L B737 A320
Top Flight Numbers	KAL214 AAR284 ASA1191

Noise Reporters Location Map



\*New Reporters Top City: Atherton, Castro Valley, Foster City, Lafayette, Los Altos Hills, Los Gatos, Millbrae, Oakland, Orinda, Palo Alto, and South San Francisco.

Hourly Noise Reporters (Average Day in a Month) ■ Noise Reporters ■ Operations



Notes: Address validation Relies on USPS-provided ZIP Code look up table and USPS-specified default city values.

## Airports



98% of noise reports correlate to a flight origin/destination airport.

Source: SFO Intl Airport Noise Monitoring System

## **SFO Airport/Community Roundtable**

Meeting No. 326 Minutes  
Wednesday, August 5, 2020

### **Call to Order / Roll Call / Declaration of a Quorum Present**

Roundtable Chairperson, Ricardo Ortiz, called the Regular Meeting of the SFO Airport/Community Roundtable to order, at approximately 7:00 p.m., via teleconference pursuant to the various orders issued by the San Mateo County Health Officer and the Governor's office, which discourage large public gatherings.

Linda Wolin, Acting Roundtable Coordinator, called the roll. A quorum (at least 12 Regular Members) was present as follows:

#### **REGULAR MEMBERS PRESENT**

Edward McCaffrey - City and County of San Francisco Mayor's Office  
Doug Yakel – City and County of San Francisco Airport Commission  
Carol Ford - C/CAG Airport Land Use Committee (ALUC)  
Elizabeth Lewis – Town of Atherton  
Davina Hurt – City of Belmont  
Terry O'Connell – City of Brisbane  
Ricardo Ortiz – City of Burlingame  
Pamela DiGiovanni – City of Daly City  
Sam Hindi – City of Foster City  
Al Royse – Town of Hillsborough  
Cecilia Taylor – City of Menlo Park  
Ann Schneider – City of Millbrae  
Mike O'Neill – City of Pacifica  
Ann Wengert – Town of Portola Valley  
Janet Borgens – City of Redwood City  
Laura Davis – City of San Bruno  
Adam Rak – City of San Carlos  
Tom Livermore – Town of Woodside

#### **REGULAR MEMBERS ABSENT**

City and County of San Francisco Board of Supervisors  
County of San Mateo Board of Supervisors  
City of Half Moon Bay  
City of San Mateo  
City of South San Francisco

#### **ROUNDTABLE STAFF**

Linda Wolin – Acting Roundtable Coordinator  
Angela Montes Cardenas – Roundtable Administrative Secretary  
Janneth Lujan – County of San Mateo, Planning and Building Executive Secretary  
Justin Cook – Roundtable Technical Consultant (HMMH)

#### **SAN FRANCISCO INTERNATIONAL AIRPORT STAFF**

Bert Ganoung, Noise Office Manager  
David Ong, Noise Systems Manager  
Lauren Torrisi, Public Service Aide  
Anneliese Taing, Noise Specialist  
Anthony Carpeneti, Noise Specialist



## Public Comments for Items NOT on the Agenda

NONE

ACTION: Janet Borgens **MOVED** to set agenda and approve consent item 1, Airport Director's Reports, and item 2, Minutes from June 3, 2020 meeting. The motion was seconded by Terry O'Connell and **CARRIED**, roll call vote passed unanimously.

### 3. Chairman's Report

Roundtable Chairman, Ricardo Ortiz, began his verbal report by stating that the HMMH one year contract extension had been finalized. He shared with the Roundtable members that an RFP will be issued prior to the contract expiration for multi-year contract.

### 4. Presentation on Process for Amending Roundtable Membership

Linda Wolin, acting Roundtable Coordinator, presented the Roundtable with details on process for amending Roundtable membership. She outlined the difference between adding an in-County member versus out-of-County member. She shared that all Roundtable membership documents are available on the Roundtable website, the Bylaws and MOU. Ms. Wolin gave an outline of the steps needed for in-County members to withdraw from or join the Roundtable. She also provided information and steps that must occur for out-of-County members to join the Roundtable.

Brian Wong, Lead County Counsel, along with Ms. Wolin answered questions and addressed comments from Roundtable members.

Public Comment:

Written Comment:

Rebecca Ward from Palo Alto – comment was read into record by Ms. Montes

Spoken Comment:

Mark Shull from Palo Alto

Eric Filseth from Palo Alto City Council

### 5. Report from San Francisco Airport Commission

Airport Public Information Officer, Doug Yakel, presented in place of Airport Director, Ivar Satero. Mr. Yakel shared that there was a slight increase in passenger activity as cities and states started to re-open, however as cases have surged SFO has seen a retreat in activity and deferral from airlines to resume flights. Operations are 87% lower than it would normally be this time of year. He stated that airlines are gearing up to large layoffs. He stated that American Airlines and Alaska Airlines are laying off hundreds of employees. Mr. Yakel also mentioned that United Airlines gave 6,500 layoff notices to employees. He shared that CARES Act funding for SFO runs out at the end of September.

Mr. Yakel provided an update on GBAS, he shared that they received approval for contract with Honeywell that allow SFO to install physical hardware that make exploration of GBAS technically possible. He shared that the first step in ramping up communication regarding GBAS in new section on flysfo.com within noise section of website. This section includes FAQs around GBAS. He assured Roundtable members and the public that SFO is committed to ramp up

dialogue around GBAS and that is made easier with new website. He finalized by proposing a presentation at next Technical Working Group meeting.

Mr. Yakel answered questions from Roundtable members.

Bert Ganoung, Noise Manager, shared the new SFO Aircraft Noise Office website. He briefly showcased the many new features and pages that will be found on the updated website.

Public Comment:

Darlene Yaplee from Palo Alto  
Jennifer Landesmann from Palo Alto  
Mark Shull from Palo Alto  
Peggy McLaughlin from Hillsborough  
Rebecca Ward from Palo Alto  
Peter Grace from Brisbane  
Marie-Jo Fremont from Palo Alto

## **6. Update from Technical Working Group Meeting (July 29, 2020)**

Chairman Ricardo Ortiz provided a summary of the Technical Working Group meeting and FAA presentation. He referred Roundtable members and public to website for technical working group information and to review presentation from FAA.

Public Comment:

Liz Lopez from San Francisco  
Jennifer Landesmann from Palo Alto  
Jennifer T from Sunnyvale  
Jane Manning from Santa Cruz Mountains

## **7. Update from Portable Noise Monitor Placement Subcommittee**

Subcommittee Chair, Terry O'Connell, shared that the subcommittee has been trying to establish a process for placement of portable noise monitors. She noted that more monitors are available due to recent funding and the subcommittee is working to create a standard request form with SFO. The committee is considering communities that are impacted by noise but lack historical data. Certain communities have not been historically monitored for noise. The Portable Noise Monitor Placement subcommittee prioritizes placement in communities that are underserved, Roundtable member requests, form submitted by public cities. RT members in collaboration with RT staff and airport discussed that Bert Ganoung and Justin Cook would work together in regard to cities that lack historical data.

Chair O'Connell addressed and clarified process for requesting a portable noise monitor.

Public Comments:

Jennifer Landesmann from Palo Alto  
Mark Shull from Palo Alto  
Rebecca Ward from Palo Alto  
Darlene Yaplee form Palo Alto

## **8. Update from Ground-Based Noise Subcommittee Meeting (July 30, 2020)**

Subcommittee Chair, Ann Schneider, provided an updated from Ground-Based Noise subcommittee meeting. She shared that Justin Cook and staff had been working on a spectral analysis study proposal and 5 different layers of data. HMMH will analyze the following 5 scenarios as part of the GBN study:

**Scenario 1** – 2 Aircraft Types Departing Runway 1L at Start of Takeoff Roll – Without and With Vegetation

**Scenario 2** – 2 Aircraft Types Departing Runway 1R at Start of Takeoff Roll – Without and With Vegetation

**Scenario 3** – 2 Aircraft Types Departing Runway 1L at Secondary Takeoff Point – With and Without Vegetation

**Scenario 4** – 2 Aircraft Types Departing Runway 1R at Secondary Takeoff Point– With and Without Vegetation

**Scenario 5** – 2 Aircraft Types Departing at the Same Time but Staggered on Runway 1L and 1R – With and Without Vegetation

Ms. Schneider and Mr. Ortiz answered questions and addressed comments from Roundtable members.

Public Comment:

Mark Shull from Palo Alto

Marie-Jo Fremont from Palo Alto

## **9. Legislative Subcommittee**

This Item was presented at the beginning of the meeting to honor Emily Tranter's time as she joined from the east coast.

Legislative Committee Chair Janet Borgens introduced Emily Tranter, Executive Director, National Organization to Insure a Sound Controlled Environment.

Ms. Tranter began by providing an introduction and brief background on her time at the National Organization to Insure a Sound Controlled Environment. Emily emphasized that she is here for the Roundtable to use her as resource based on constituent's interest or members. She has been involved in conversations with FAA in terms of flight patterns in other airports. She confirmed that PBN and NextGen were on hold due to air traffic need to go back into tower. Workload has changed completely, there is lower capacity at airports because people are not flying. She continued by stating that for a while there has been no update on airport noise. She stated that her Board President sits on the NextGen Advisory Committee, where they advise FAA administrator not to wait for noise to be a problem again but rather be pro-active.

Ms. Tranter spoke on the Moving Forward Act, that was passed by the House of Representatives last month, which included interesting pieces for aviation noise. Current authorization runs out on 9/30/2020 and Ms. Tranter is not hopeful that Senate version will be introduced by then. The Moving Forward Act would provide more funding for airports for capital improvement projects in airports for mitigation on noise.

Ms. Tranter shared that congress directed the FAA in the 2019 appropriations bill to do a study on alternative metrics for noise. Based on the April 2020 study report, the FAA reported that DNL was most appropriate.

Ms. Tranter answered questions from SFO Roundtable members.

Subcommittee Chair, Janet Borgens, shared with Roundtable members that the final letter of Supersonic aircraft was submitted to FAA and attached as part of the packet.

Public Comment:

Mark Shull from Palo Alto

Sue Deigre from Pacifica (former Councilmember and former RT representative)

Peggy McLaughlin from Hillsborough

Rebecca Ward from Palo Alto

## **10. Update on General Aviation Noise Issues**

Technical Consultant Justin Cook provided a brief update.

Mr. Cook shared Noise news, updates and invited the members to give feedback.

Public Comment:

Jennifer Landesmann from Palo Alto

Glenn Morse from United Airlines

## **11. Member Communications / Announcements**

NONE

## **12. Adjourn**

Chairperson Ortiz adjourned the meeting at approximately 9:20 p.m.

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

September 29, 2020

TO: Roundtable Members

FROM: Michele Rodriguez, Roundtable Coordinator

Re: Establishing Regular 2021 Roundtable Meeting Dates

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Dear Roundtable Members,

Below are the proposed 2021 regular meeting dates. All meetings will start at 7pm and will continue to be held virtually/via Zoom, until health orders allow. Once in-person meetings resume, they will be held at David J. Chetcuti Community Room, 450 Polar Avenue, Millbrae CA 94030.

February 3, 2021

April 7, 2021

June 2, 2021

August 4, 2021

October 6, 2021

December 1, 2021

# PRESENTATIONS

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## Michele O. Rodriguez

Telephone: (415) 309-1608

Mrodriguez2@smcgov.com

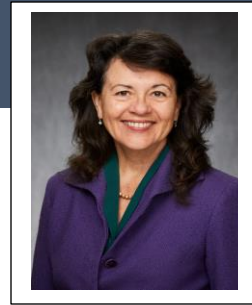
Michele has had a 30-year career, 20-years for municipal governments, and 10-years in the private sector focusing on community planning, economic development and management. Michele's career highlights include:

- First General Plan in the nation with the overarching theme of sustainability.
- Program design, and implementation of *Energy Upgrade California* a greenhouse gas and workforce initiative.
- Steering Committees: Marin Countywide Plan, Energy Upgrade California, Marin Economic Commission, Marin Workforce Investment Board, and Planning Commissions.
- Four-County Targeted Industry Workforce Initiative for nursing, home health care, renewable energy, and specialty foods.
- Climate Change, and Resiliency Policies and Programs.
- Budget Projections and Fiscal Management.
- Operational Efficiency and Program Evaluation.
- Social Equity and Inclusionary Programs.

Michele has served as the Development Services Director for the City of San Pablo and the Long-Range Policy and Sustainability Principal for the County of Marin. While at Marin County she was Technical Program Manager for the Marin Countywide Plan and developed public policy for land use, and transportation related to airport growth. In addition, she led an effort for Gness Field Airport runway expansion, alternatives analysis, environmental impact review, and public outreach.

Michele has had the opportunity to lead several large Steering Committees of public officials. This work included development of mission statements, strategic plans, work plans, budget projections, and annual reports. Her day-to-day work has included agenda and minutes preparation, budget oversight, contract management, multilingual meetings.

She enjoys painting, traveling, yoga, running, backpacking, bicycling, hiking, motorcycling, and spending time with her family.



### EXPERIENCE

**Municipal Resources Group**  
EXECUTIVE MANAGEMENT CONSULTANT  
*APRIL 2018 – August 2020*

**CITY OF SAN PABLO**  
EXECUTIVE Community  
Development  
*OCTOBER 2013-APRIL 2018*

**FRONTIER ENERGY/ICF International**  
TECHNICAL PROGRAM MANAGER  
*AUGUST 2008-OCTOBER 2013*

**COUNTY OF MARIN**  
PRINCIPAL  
*JUNE 2000-AUGUST 2008*

### EDUCATION

Master of Urban & Regional Planning,  
and Economics  
SAN JOSE STATE UNIVERSITY  
SAN JOSE, CA

### MEMBERSHIPS

INTERNATIONAL CITY/COUNTY  
MANAGEMENT ASSOCIATION  
AMERICAN PLANNING ASSOCIATION

### CERTIFICATIONS

AMERICAN INSTITUTE OF CERTIFIED  
PLANNERS  
LEADER IN ENERGY AND ENVIRONMENTAL  
DESIGN



# Aviation Noise & Emissions Symposium 2021

February 23-26, 2021

Register



*Aviation Noise & Emissions Symposium 2021 > Register > Register*

## Registration will open November 1st, 2020

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### Join us at the Annual Aviation Noise & Emissions Symposium!

#### Registration Includes:

**All prices are for the four-day virtual symposium, there are no one-day tickets**

- Admission to all sessions and activities Tuesday through Friday
- Full access to virtual platform and connecting with participants virtually
- Digital copies of all approved presentations
- Access to Virtual Exhibit Hall
- Opportunities for connecting with colleagues virtually

NOTE: The 2021 symposium will not include trainings.

Community Members: Contact Sandra Hall for the discount code (airqualityevents @ ucdavis.edu)

#### Registration Closes February 19th



## **Cancellation Policy**

- Cancellation before December 31st, 2020: Registration amount minus a \$50 handling fee
- Cancellation January 1st - February 1st, 2021: Half of registration fees paid.
- Cancellation after February 2nd, 2021: No cancellations will be accepted; however substitutions will be allowed. Substitutions can be made by contacting the conference organizer. This must be done no later than February 19, 2021.

## **COMMUNITY**

**\$75 - \$150**

*Early Bird Price Ends December 18th*

## **GOVERNMENT**

**\$150 - \$200**

*Early Bird Price Ends December 18th*

## **GENERAL ADMISSION**

**\$200 - \$250**

*Early Bird Price Ends December 18th*

# FAA Noise Portal

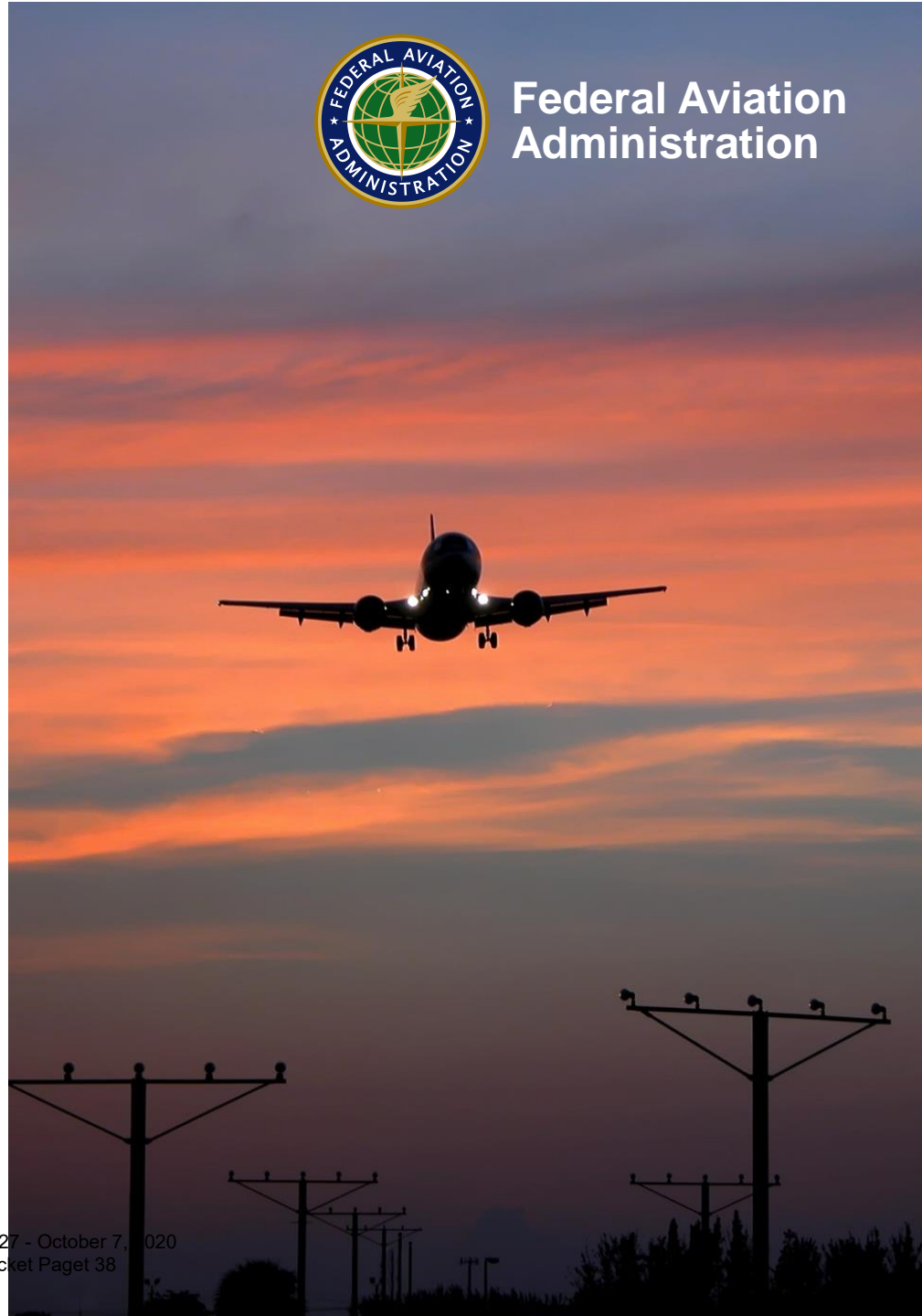


Federal Aviation  
Administration

## Discussion with:

San Francisco Airport Community  
Roundtable

**Date:** October 7, 2020



# Noise Portal – Purpose and Goals

**Purpose:** *to identify how the FAA can more efficiently and effectively respond to and address noise complaints in a clear, consistent and repeatable manner that is responsive to the public and applies the best use of FAA resources.*



## Part 1

Identify and implement improved and consistent agency-wide policy and procedures for the FAA's process to respond to noise complaints / inquiries, and



## Part 2

Identify and evaluate potential actions that the FAA might take to better address the underlying issue raised by complaints, particularly regarding the implementation of NextGen procedures.



# Noise Portal Process (FAA Roles & Responsibilities)



## FAA Office of the Environment and Energy

Responsible for establishing and maintaining FAA's noise complaint process, the Noise Complaint/Inquiry Database and Tracking System (Noise Portal), and national aircraft noise website



## FAA Regional Administrator Offices

Act as the single data collection and coordination point at the regional level for public noise complaints/inquiries and establish and maintain regional aircraft noise websites



## FAA Noise Ombudsman

Addresses unresolved complaints at the Regional Administrator level



## Regional Administrator Offices and Noise Ombudsman

Coordinate responses to the public with the relevant FAA Lines of Businesses and Staff Offices



## FAA Community Engagement Officer

Key team members for planning, implementing and managing community engagement related to aviation noise issues in their assigned areas



# FAA Noise Portal Process (Public)



1) Public reviews aircraft noise related information on FAA Regional Aircraft Noise Website

2) Public submits noise complaint/ inquiry through FAA Aircraft Noise Complaint/ Inquiry System

3) FAA Regional Administrator's Office receives incoming complaint/ inquiry and coordinates response with responsible FAA staff office

4) Regional Administrator Office responds to public through the FAA Noise Portal



5) Regional Administrator Office addresses FAA related issues and may direct the public to the airport sponsor for airport related issues

Information from incoming complaints is stored in an FAA database, and is updated automatically via the FAA Noise Portal entries. The FAA Noise Ombudsman addresses unresolved complaints at the regional level through the Noise Portal by reaching out to the FAA staff offices as needed.



# Why FAA is Partnering with Airports

1. Minimize duplication of efforts
2. Avoid contradictory, inconsistent messaging
3. Set up channels for communication and information sharing
4. Strengthen relationships

## Example Process with Partnering Airport Concept





# FAA Policy on Addressing Aircraft Noise Complaints / Inquiries from the Public

**Introduction:** Addressing aircraft related noise is a shared responsibility among the FAA, airport sponsors, airlines, state and local government, and communities.

**Policy:** FAA seeks to efficiently and effectively respond to and address FAA related aircraft noise complaints and inquiries from the public in a clear, consistent, and repeatable manner that is responsive and applies the best use of FAA resources.

## Highlights from the FAA policy include:

- Establishing and utilizing the FAA website to provide the public with up-to-date information regarding on-going projects including FAQs, public meetings and educational information on FAA noise and policy issues.
- Identifying specific information the public must include for the FAA to fully address the complaints/inquiry.
- Utilizing the FAA Noise Portal for consistent reporting and tracking of noise complaints and inquiries.
- Accepting and registering noise complaints and inquiries with the necessary information submitted through the FAA Noise Portal, by postal mail, or by voice message.
- Not accepting noise complaints or inquiries from third party automated applications or devices.
- Not responding to the same general complaint or inquiry from the same individual more than once.
- Coordinating with partnering airport sponsors to share applicable noise complaint/inquiry data.
- Providing timely responses to aircraft noise and inquiries.
- Focusing on the content of the noise complaints/inquiries FAA receives not the volume



# Questions





## Federal Aviation Administration

# Western-Pacific Region Aircraft Noise and Community Involvement Information

For the states and territories the Western-Pacific Region Administration serves, we provide information on community involvement and aircraft noise issues, including how to submit a noise complaint or inquiry.

## Noise Complaints & Inquiries

### Noise from Aircraft Operations at Your Community Airport

The FAA's continuing mission is to ensure the safe and efficient use of our nation's navigable airspace. We also participate in an array of research and community engagement activities focused on addressing aircraft noise. However, airport sponsors (i.e., owners/operators) also share the responsibility for reducing incompatible land uses and noise impacts on residents of the surrounding area.

#### To send a noise complaint or inquiry about a noise concern:

- Review FAA's noise complaint and inquiry policy (PDF) to become familiar with how we process these submissions.
- To report airport-related noise: Enter the address where the noise concern occurred to contact the nearest non-partnering airport
- If you wish to **send a noise complaint or inquiry not directly related to an airport** (or if you have already communicated with an airport), please use the FAA's online noise inquiry form.

## Regional Ombudsman

The FAA Regional Administrator designates a Regional Ombudsman.

- Each Regional Ombudsman will work with the Regional Administrator to ensure public inquires related to aviation noise, pollution, and safety are properly addressed.

- [Contact the Regional Ombudsman](#) with other aviation noise-related questions and concerns.

## Aviation Noise General Information

[Learn about aviation noise](#) and the FAA's ongoing work to improve our understanding of the ways aviation noise may affect communities.

## Community Involvement

The FAA is committed to [inform and involve the public](#), engage with communities and give meaningful consideration to community concerns and views as we make aviation decisions that affect them.

- Learn about community involvement for the Western-Pacific Region Metroplex and Single-Site initiatives:
  - Arizona:
    - [PHX-Phoenix Single-Site](#)
  - California:
    - [Northern California Metroplex](#)
    - [Southern California Metroplex](#)
    - [BUR-Burbank Single-Site](#)
    - [HHR-Hawthorne Single-Site](#)
    - [OAK-Oakland Single-Site](#)
    - [ONT-Ontario Single-Site](#)
    - [SFO-San Francisco Single-Site](#)
  - Nevada:
    - [Las Vegas Metroplex](#)

## Other Complaint or Inquiry Types

- For **safety concerns or to report low-flying aircraft**, [contact your local Flight Standards District Office](#). Although low-flying aircraft often raise concerns about both safety and noise, **safety takes priority**, so the FSDO is your best resource.
- For **military aircraft** noise complaints, please [contact the military](#).
- For unmanned aircraft systems (**drones**), [contact the FAA Unmanned Aircraft Systems office](#).

This page was originally published at:

[https://www.faa.gov/about/office\\_org/headquarters\\_offices/arc/western\\_pacific/noise\\_complaint/](https://www.faa.gov/about/office_org/headquarters_offices/arc/western_pacific/noise_complaint/)



## FAA Noise Portal

Provide only the privacy information requested below in the associated fields. Do not provide any additional information beyond what is requested.

### Submitting Multiple Complaints

The FAA will not respond to the same general complaint or inquiry from the same individual more than once. The same general complaint or inquiry is one that does not differ in general principal from a previous complaint, and that would generate the same FAA response.

(\*)= Required Field

#### Noise Complaint Information

##### My Information

\* **First Name**

\* **Last Name**

\* **Email**

##### Event Information

\* **Event Street Address/Cross Streets**



\* **City**

\* **State**

\* **Zip Code**



**\* Approximate Start Date/Time**

**Approximate End Date/Time**

**\* Description/Questions**

**Aircraft Type**

▼

**Aircraft Description**

**Airport Name/Source**

**Repeat Occurrence**

Yes  No

**\* Did you contact the local airport?**

Yes  No

**Other Officials Contacted**

**Response Requested**

Yes  No

**Support Files**

Check your email to validate your email address to submit your complaint/inquiry. You can also attach support files at this time.

# **REGULAR AGENDA**

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September 29, 2020

TO: SFO Airport/Community Roundtable Members

FROM: Michele Rodriguez, Roundtable Coordinator

SUBJECT: Budget Adoption Memo FY 2020-2021

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**EXECUTIVE SUMMARY:**

The SFO Airport/Community Roundtable must approve member funding amounts and a budget for FY 2020/2021 operations. The Bylaws provide that Roundtable operations, administration, and management are funded by its member agencies and that the budget must be approved each calendar year between May 31 and October 31.

**RECOMMENDATION:**

Approve a 12-month budget based on current Roundtable funding for FY2020-2021.

**BACKGROUND:**

Article VIII, of the Roundtable Bylaws requires the adoption of an annual budget between May 31 and October 31 of each calendar year. The fiscal year is from July 1 to June 30. The Roundtable is funded by its voting member agencies.

In preparation of the annual budget an audit of the trust fund was conducted for FY2017 – current. The Airport Community Roundtable budget has expenses balanced with revenue with a positive year-end balance, including a solid reserve fund through 2024. Any additional, projects, programs, special studies will require additional revenue.

Highlights from the expense report, and proposed budget are:

**Budget Sources**

- *Airport Commission:* The City and County of San Francisco annual funding contribution of \$220,000 has remained constant.
- *Member Cities and C/CAG*
  - Member cities were given 50% membership relief during FY 2011-12 through FY17-18, resuming regular membership dues of \$1,500 annually in FY2018-2019.
  - The budgeted and actual voting member dues are not being met when membership agencies do not pay dues.
- *Miscellaneous:* Invoices for member agencies should go out earlier in the year to align with the fiscal year effective date. For FY 2020-2021, invoices were sent in September 2020.

**Expenses**

- *Staffing:* The San Mateo County Coordination Services budget remained constant. New increases are expected in FY 2020-2024 to reflect actual staff costs, including annual salary step increases and a slight increase in the level of administrative support to the Roundtable over past years. San Mateo County does not charge for Planning Director, Attorney, or Finance staff support to the Roundtable.
- *Administration/Operations:* The website is a major tool for communicating the work of the Roundtable with our members, partners, and communities; the FY2020-2024 budget reflects an increase in costs to modify the site and update the host. This is an expected, but necessary cost that has become evident with the recent site crash.
- *Projects, Programs & Other:* COVID-19 has decreased expenses in conference and field trip. The Ground Based Noise Modeling Study, estimated to cost \$50,000, is included and should be identified as a priority in the Strategic Plan and Work Plan discussion.

**ATTACHMENTS:**

- SFO Airport Community Roundtable Budget 2017-2024

SFO Airport/Community Roundtable - Expense Report & Proposed Budget FY 2017-2024

SOURCES	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024	
	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL
<b>Revenue</b>														
San Francisco Airport Commission	\$220,000	\$220,000	\$220,000	\$220,000	\$220,000	\$220,000	\$220,000		\$220,000		\$220,000		\$220,000	
Roundtable Membership	\$20,250	\$19,500	\$40,500	\$39,000	\$40,500	\$39,000	\$40,500		\$40,500		\$40,500		\$28,500	
Meeting Room In-Kind Millbrae					\$2,700									
<b>Total Revenue</b>	\$240,250	\$239,500	\$260,500	\$259,000	\$263,200	\$259,000	\$260,500		\$260,500		\$260,500		\$248,500	
Fund Balance	\$28,613	\$28,613	\$34,625	\$31,918	\$102,548	\$102,548	\$210,971		\$133,687		\$102,568		\$67,138	
<b>Total Sources</b>	<b>\$268,863</b>	<b>\$268,113</b>	<b>\$295,125</b>	<b>\$290,918</b>	<b>\$365,748</b>	<b>\$361,548</b>	<b>\$471,471</b>		<b>\$394,187</b>		<b>\$363,068</b>		<b>\$315,638</b>	
											0			
<b>EXPENSES</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>
<b>Staffing and Coordination</b>														
County of San Mateo Coordination Services	\$113,000	\$108,825	\$113,000	\$85,469	\$113,000	\$73,108	\$139,534		\$143,719		\$148,031		\$152,472	
Roundtable Aviation Technical Consultant	\$90,000	\$115,124	\$90,000	\$92,767	\$90,000	\$62,186	\$90,000		\$90,000		\$90,000		\$90,000	
													\$0	
	<b>\$203,000</b>	<b>\$223,949</b>	<b>\$203,000</b>	<b>\$178,236</b>	<b>\$203,000</b>	<b>\$135,294</b>	<b>\$229,534</b>		<b>\$233,719</b>		<b>\$238,031</b>		<b>\$242,472</b>	
<b>Administration/Operations</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>
Meeting Room In-Kind Millbrae						2700								
Postage / Printing	\$3,000	\$2,239	\$3,000	\$2,383	\$2,000	\$843	\$0		\$0		\$0		\$0	
Website	\$107	\$107	\$107	\$146	\$107	\$107	\$6,300		\$1,800		1800		\$1,800	
Data Storage & Conference Services	\$900	\$384	\$900	\$348	\$900	\$738	\$900		\$900		\$900		\$900	
Miscellaneous Office Expenses/Equipment	\$1,500	\$994	\$1,500	\$669	\$1,500	\$22	\$1,500		\$1,500		\$1,500		\$1,500	
Video Services	\$5,000	\$3,030	\$5,000	\$5,190	\$6,000	\$3,255	\$4,000		\$4,000		\$4,000		\$4,000	
	<b>\$10,507</b>	<b>\$6,754</b>	<b>\$10,507</b>	<b>\$8,735</b>	<b>\$10,507</b>	<b>\$7,665</b>	<b>\$12,700</b>		<b>\$8,200</b>		<b>\$8,200</b>		<b>\$8,200</b>	
<b>Projects, Programs &amp; Others</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>
Noise Conferences Attendance, Coordinator	\$1,800	\$1,230	\$1,500	0	\$1,500	\$1,226	\$200		\$1,500		\$1,500		\$1,500	
Noise Conferences Attendance, Members(5)	\$4,000	\$0	\$2,000	\$0	\$2,000	\$1,242	\$200		\$2,000		\$2,000		\$2,000	
TRACON Field Trip(s)	\$750	\$0	\$750	0	\$750	\$0	\$0		\$750		\$750		\$750	
Airport Noise Report subscription	\$850	\$850	\$850	\$850	\$850	\$850	\$850		\$850		\$850		\$850	
N.O.I.S.E. Membership	\$4,300	\$0	\$4,300	\$0	\$4,300	\$4,300	\$4,300		\$4,300		\$4,300		\$4,300	
Fly Quiet Awards	\$300	\$705	\$300	\$548	\$300	\$0	\$0		\$300		\$300		\$300	
Ground Based Noise Study							\$50,000							
	<b>\$12,000</b>	<b>\$2,785</b>	<b>\$9,700</b>	<b>\$1,398</b>	<b>\$9,700</b>	<b>\$7,618</b>	<b>\$55,550</b>		<b>\$9,700</b>		<b>\$9,700</b>		<b>\$9,700</b>	
<b>Contingency Fund</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>
Reserve	\$40,000	\$0	\$40,000	\$0	\$40,000	\$0	\$40,000		\$40,000		\$40,000		\$40,000	
	<b>\$40,000</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$0</b>	<b>\$40,000</b>		<b>\$40,000</b>		<b>\$40,000</b>		<b>\$40,000</b>	
<b>TOTAL EXPENSES</b>	<b>\$265,507</b>	<b>\$233,488</b>	<b>\$263,207</b>	<b>\$188,370</b>	<b>\$263,207</b>	<b>\$150,577</b>	<b>\$337,784</b>		<b>\$291,619</b>		<b>\$295,931</b>		<b>\$300,372</b>	
	<b>PROJECTED</b>	<b>ACTUAL</b>	<b>PROJECTED</b>	<b>ACTUAL</b>	<b>BUDGET</b>	<b>ACTUAL</b>	<b>PROJECTED</b>		<b>PROJECTED</b>		<b>PROJECTED</b>		<b>PROJECTED</b>	
<b>UNCOMMITTED FUNDS / YEAR END BALANCE</b>	<b>\$3,356</b>	<b>\$34,625</b>	<b>\$31,918</b>	<b>\$102,548</b>	<b>\$102,541</b>	<b>\$210,971</b>	<b>\$133,687</b>		<b>\$102,568</b>		<b>\$67,138</b>		<b>\$15,266</b>	

September 29, 2020

TO: SFO Airport/Community Roundtable Members

FROM: Michele Rodriguez, Community Roundtable Coordinator

SUBJECT: Strategic Plan – Work Plan Ad Hoc Committee

---

**EXECUTIVE SUMMARY:** A Strategic Plan, and annual Work Plan combined with the budget adoption can help the Roundtable remain focused and deliver on specific deliverables.

**RECOMMENDATION:** Approve the formation of a Strategic Plan – Work Plan Ad Hoc Committee to recommend to the Roundtable a four-year Strategic Plan, and a one-year Work Plan. The Roundtable Chair will serve as Chair of the Ad Hoc Committee.

**BACKGROUND:** A Strategic Plan can be a powerful tool clarifying multi-year goals and vision, and the Work Plan aligns with the budget and implements the Strategic Plan with specific annual deliverables (see attached overview).

A draft agenda for the Strategic Plan and Work Plan meetings is attached for your review. The process would involve updating the existing Roundtable Strategic Plan (2015-2018), and Work Plan (2017-2018).

**ATTACHMENTS:**

- Process graphic overview
- Strategic Plan Agenda (draft)



September 29, 2020

---

**MEETING 1**

**Strategic Plan 2020-2024**

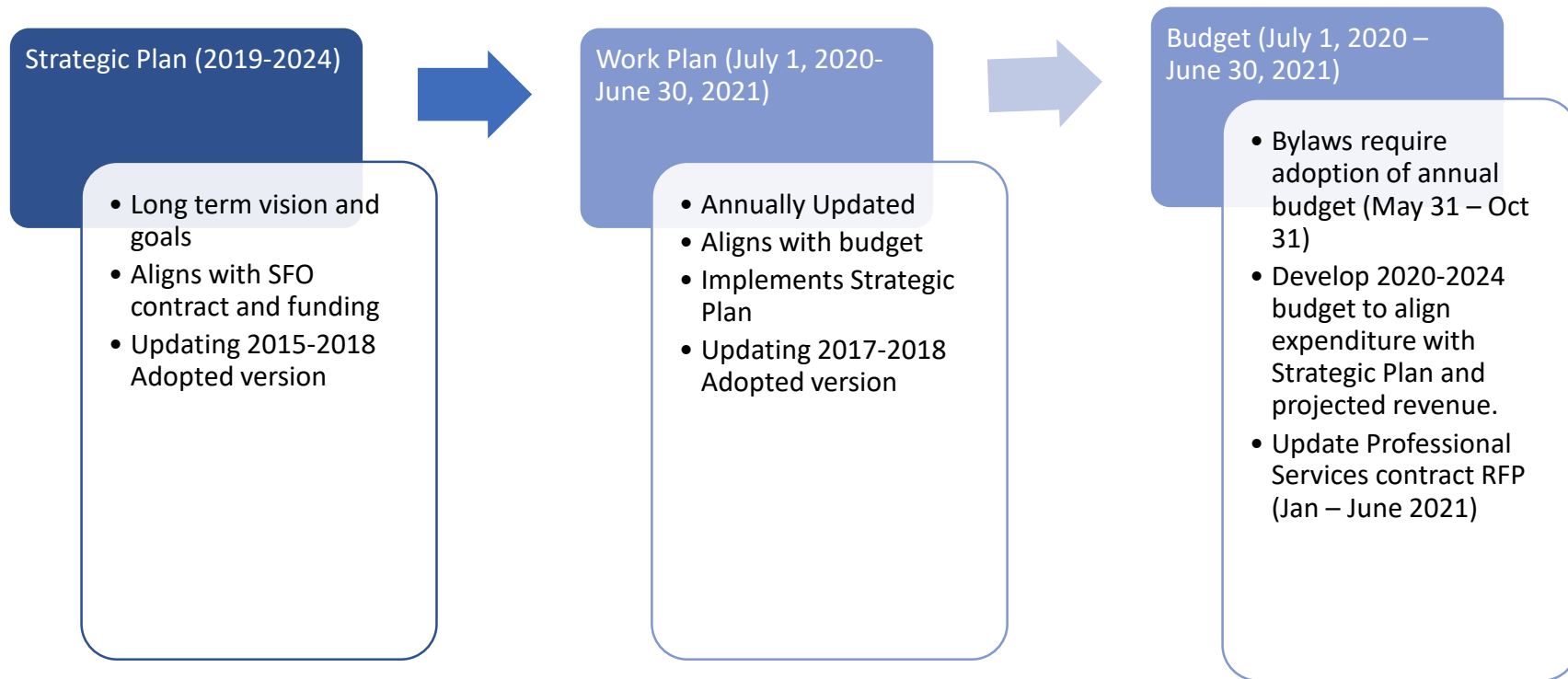
1. Strategic Plan purpose and relationship to Work Plan, and Budget (5-min)
2. Presentation by SFO on Strategic Plan, Capital Plan, Social Equity Plan (20-min)
3. Review of existing Strategic Plan (2015-2018).
  - a. Review Survey of:
    - i. Identify accomplishments
    - ii. What tasks should remain?
    - iii. What should be added?
4. Prioritize items (1 – 4 years), or at a minimum one year.

**MEETING 2**

**Work Plan (July 1, 2020-June 30, 2021)**

1. Review the Strategic Plan prioritize.
2. Identify one-year priorities and add tasks, budget and staff assigned.

Each meeting shall last two hours each.



# REPORTS

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# Congress of the United States

Washington, D.C. 20515

September 23, 2020

Steve Dickson, Administrator  
U.S. Department of Transportation  
Federal Aviation Administration  
Office of the Administrator  
800 Independence Avenue, S.W.  
Washington, DC 20591

Dear Administrator Dickson:

As Members of the U.S. House of Representatives, we write to express deep concern regarding the Federal Aviation Administration's Report to Congress dated April 14, 2020, on its findings pursuant to Sections 188 and 173 of the FAA Reauthorization Act of 2018 (P.L. 115-254). After conducting a detailed review of the FAA's report, we find it wholly inadequate, failing to meet the mandate in the law.

As you know, Section 188 of the FAA Reauthorization Act of 2018 mandated the FAA to "evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns." Further, the law directed the FAA to provide Congress with a detailed report on its findings. On April 14, 2020, the FAA released the report, and in addition to reporting on Section 188, the FAA also used this report to address Section 173, which states: "Not later than 1 year after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall complete the ongoing evaluation of alternative metrics to the current Day Night Level (DNL) 65 standard." It is our assessment that this report entirely fails to seriously analyze and consider alternative metrics to the DNL 65 standard.

First and foremost, the report fails to evaluate well-respected and widely used alternatives, including: the Cumulative Noise Equivalency Level ("CNEL") metric, which California uses to evaluate aircraft and other noise exposures<sup>1</sup>; the ISO 1996-1:2016 ("Acoustics – Description measurement and assessment of environmental noise"), an international standard specifically adopted to identify community noise concerns in general, but airplane noise in particular<sup>2</sup>; and the European alternative to the DNL metric, known as the DENL, or the day-evening-night level metric. The latter noise metric disaggregates evening and night noise levels

<sup>1</sup> Lichman, Barbara. "FAA Sidesteps Congressional Mandate to Evaluate Alternative Noise Metrics." Aviation & Airport, 10 June 2020, [www.aviationairportdevelopmentlaw.com/2020/06/articles/federal-aviation-administration-faa/faa-sidesteps-congressional-mandate-to-evaluate-alternative-noise-metrics/](http://www.aviationairportdevelopmentlaw.com/2020/06/articles/federal-aviation-administration-faa/faa-sidesteps-congressional-mandate-to-evaluate-alternative-noise-metrics/).

<sup>2</sup> Taber, Steven. "FAA's Report On Alternatives to the DNL Noise Metric Is Tone Deaf." LinkedIn, 4 May 2020, [www.linkedin.com/pulse/faas-report-alternatives-dnl-noise-metric-tone-deaf-steven-taber](https://www.linkedin.com/pulse/faas-report-alternatives-dnl-noise-metric-tone-deaf-steven-taber).

to address the fact that communities experience noise events differently during the day, the evening and the nighttime sleeping hours. A credible evaluation of alternative noise metrics and the 65 DNL standard would have addressed the correlation between each metric and the known noise impact on communities in a NextGen environment, similar to a comparison done in an FAA-funded 2011 report on replacement metric research.<sup>3</sup> However, in lieu of providing a thorough evaluation, the report merely describes DNL and a number of alternative metrics, while offering an incomplete and at times inaccurate comparison of DNL to those alternatives.

Furthermore, there are glaring absences in the FAA's assessment that render it incomplete. For example, the report fails to analyze complaint data despite the fact that the FAA itself utilized complaint data as a lawful alternative metric in its 2013 federal court case against Helicopter Association International, Inc.<sup>4</sup> Failing to mention any role for complaint data would appear in contrast to FAA's Noise Complaint Initiative begun in the last 12 months, allowing direct reporting of noise events to FAA. The report also lacks the scientific nuance the agency demonstrated in 2019, when the FAA funded a research project at MIT to evaluate metrics and assess the impact of frequent overflights; that study concluded that the Number-Above (NA) metric provided an effective correlation to aircraft noise impacts on the public,<sup>5</sup> but is scarcely mentioned in this report. Even commonly used metrics are overlooked, such as the metrics for construction noise and the concept of sones. Construction noise metrics are regularly employed across the United States and capture greater noise nuance than the DNL standard. Sones represent the perception of loudness and help capture aviation noise annoyance. In our estimation, the FAA report merely stands by the agency's existing DNL metric and enumerates existing methodology with no regard to the value of improved and updated alternatives.

As a result, the FAA is effectively treating supplemental noise metrics as an asterisk to noise measurement rather than a comprehensive toolbox from which to address noise impacts. The FAA relegates supplementary metrics to an ancillary role by asserting that, "No single noise metric can cover all situations,"<sup>6</sup> and that while the "DNL metric is FAA's decision-making metric, other supplementary metrics can be used to support further disclosure and aid in the public understanding of community noise effects."<sup>7</sup> Nowhere in the report do we find clear guidance on how and when supplemental noise metrics could be used in flight procedure design decisions or to alleviate existing noise – even as the public health impact of noise continues to spread. U.S. standards to protect human health from airplane noise are not only glaringly ineffective, they also trail Western Europe's. In its 2018 Noise Guidelines for European

<sup>3</sup> Mestre, V., Schomer, P., Fidell, S., & Berry, B. (2011, June 14). Technical Support for Day/Night Average Sound Level (DNL) Replacement Metric Research. Retrieved September 16, 2020, from [https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/research/science\\_integrated\\_modeling/noise\\_impacts/media/6-14-2011\\_FinalReport\\_MetricsMestre\\_etal\\_061411\\_part1.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/research/science_integrated_modeling/noise_impacts/media/6-14-2011_FinalReport_MetricsMestre_etal_061411_part1.pdf)

<sup>4</sup> Rogers, J. A. (2013, July 12). Helicopter Ass'n Int'l, Inc. v. Fed. Aviation Admin. Retrieved September 15, 2020, from <https://www.casemine.com/judgement/us/5914f903add7b0493499f81d>

<sup>5</sup> Yu, A. Y., & Hansman, R. (2019, May). Aircraft Noise Modeling of Dispersed Flight Tracks and Metrics for Assessing Impacts. Retrieved September 16, 2020, from file:///C:/Users/kkaiser/Downloads/ICAT-2019-07\_Yu\_Aircraft%20Noise.pdf

<sup>6</sup> Federal Aviation Administration. Report to Congress, FAA Reauthorization Act of 2018 (Pub. L. 115-254), Section 188 and Sec 173. 14 Apr. 2020, [www.faa.gov/about/plans\\_reports/congress/media/Day-Night\\_Average\\_Sound\\_Levels\\_COMPLETED\\_report\\_w\\_letters.pdf](http://www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf)

<sup>7</sup> Ibid.

countries, the World Health Organization recommended using a threshold of 45 dB or lower for day and evening aircraft noise<sup>8</sup> – that constitutes 20 dB less than the DNL metric employed by the FAA, which also does not disaggregate evening-levels from night. Far from trailing Western European nations, the U.S. should be demonstrating global leadership to mitigate the public health effects of aircraft noise.

When the FAA Reauthorization Act of 2018 was passed into law, Congress sought to address community airplane noise concerns by utilizing the scientific and research arms of the FAA to substantively evaluate alternative noise metrics with an eventual eye to having those metrics inform FAA decision-making. There is widespread consensus that the DNL metric remains an inadequate measure because it averages noise over a 24-hour period, thereby understating the impact of individual noise incidences. Thus, the congressional intent underpinning Sections 188 and 173 was to address the inadequacy of the DNL metric and nudge the FAA towards a more comprehensive measure. The report fails to understand that intent. Instead, we have received a delayed and highly insufficient report that does not address community impacts of noise.

Therefore, we, the undersigned Members of Congress, insist that the FAA return to the drawing board and meaningfully evaluate alternative metrics to the current DNL 65 average, not just dismiss or ignore them, and include the potential for the use of such metrics in the United States. Furthermore, we seek formal responses to the questions in the appended Citizens' Response Report, a *Technical Report to the FAA's April 2020 Report on Alternative Noise Metrics (Reauthorization Act of 2018, Sections 173 and 188)*. The concerned constituents who raised these eleven questions live in communities directly affected by increased noise from NextGen implementation. We request formal responses to each question.

Without a thorough and nuanced analysis of the DNL standard and better, more accurate metrics, progress on aircraft noise will remain elusive. It is therefore imperative that the FAA meet its congressional mandate and begin the report anew while also addressing our constituents' questions. We look forward to the agency's response, including its plans to follow through on our request.

Sincerely,



Karen Bass  
Member of Congress (CA-37)



Eleanor Holmes Norton  
Member of Congress (DC)

<sup>8</sup> World Health Organization, Regional Office for Europe. (2018). Environmental Noise Guidelines for the European Region. Retrieved September 16, 2020, from [https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/383921/noise-guidelines-eng.pdf](https://www.euro.who.int/__data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf)



Stephen F. Lynch  
Member of Congress (MA-08)

Mike Quigley  
Member of Congress (IL-05)

Thomas R. Suozzi  
Member of Congress (NY-03)

/s/  
Donald S. Beyer Jr.  
Member of Congress (VA-08)

/s/  
Ed Case  
Member of Congress (HI-01)

/s/  
Judy Chu  
Member of Congress (CA-27)

/s/  
Anna G. Eschoo  
Member of Congress (CA-18)

/s/  
Brian Fitzpatrick  
Member of Congress (PA-01)

/s/  
Ruben Gallego  
Member of Congress (AZ-07)

/s/  
Pramila Jayapal  
Member of Congress (WA-07)

/s/  
Ro Khanna  
Member of Congress (CA-17)

/s/  
Ted W. Lieu  
Member of Congress (CA-33)

/s/  
Alan Lowenthal  
Member of Congress (CA-47)

/s/  
Joe Neguse  
Member of Congress (CO-02)

/s/  
Jimmy Panetta  
Member of Congress (CA-20)

/s/  
Scott H. Peters  
Member of Congress (CA-52)

/s/  
Jamie Raskin  
Member of Congress (MD-08)

/s/  
Kathleen M. Rice  
Member of Congress (NY-04)

/s/  
Harley Rouda  
Member of Congress (CA-48)

/s/  
C.A. Dutch Ruppersberger  
Member of Congress (MD-02)

/s/  
Adam B. Schiff  
Member of Congress (CA-28)

/s/  
David Scott  
Member of Congress (GA-13)

/s/  
Brad Sherman  
Member of Congress (CA-30)

/s/  
Adam Smith  
Member of Congress (WA-09)

/s/  
Jackie Speier  
Member of Congress (CA-14)

/s/  
Maxine Waters  
Member of Congress (CA-43)

/s/  
Frederica S. Wilson  
Member of Congress (FL-24)



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Office of the Administrator

800 Independence Ave., SW.  
Washington, DC 20591

April 14, 2020

The Honorable Roger Wicker  
Chairman, Committee on Commerce,  
Science, and Transportation  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

This letter transmits the Federal Aviation Administration's (FAA) report to Congress on an evaluation of alternative noise metrics as directed by Senate Appropriations Report 116-109 (pg. 42) for fiscal year 2019 and the requirements of Section 188, "Study regarding day-night average sound levels", of the FAA Reauthorization Act of 2018 (the Act) (Pub. L. 115-254).

Section 188 of the Act directed the FAA to submit a report evaluating alternative noise metrics to the current average day-night level standard to the appropriate Congressional committees. While not directed by the Act to include as a report, the information contained in the document also fulfills the FAA's response to Section 173.

We look forward to continued collaboration with your staff and would be happy to schedule time to brief you further if desired.

We have sent identical letters to Chairman DeFazio, Ranking Member Cantwell, and Ranking Member Graves.

Sincerely,

A handwritten signature in black ink that reads "Steve Dickson". The signature is fluid and cursive.

Steve Dickson  
Administrator



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Office of the Administrator

800 Independence Ave., SW.  
Washington, DC 20591

April 14, 2020

The Honorable Peter A. DeFazio  
Chairman, Committee on Transportation  
and Infrastructure  
House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

This letter transmits the Federal Aviation Administration's (FAA) report to Congress on an evaluation of alternative noise metrics as directed by Senate Appropriations Report 116-109 (pg. 42) for fiscal year 2019 and the requirements of Section 188, "Study regarding day-night average sound levels", of the FAA Reauthorization Act of 2018 (the Act) (Pub. L. 115-254).

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We have sent identical letters to Chairman Wicker, Ranking Member Cantwell, and Ranking Member Graves.

Sincerely,

A handwritten signature in black ink that reads "Steve Dickson". The signature is fluid and cursive.

Steve Dickson  
Administrator



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

Office of the Administrator

800 Independence Ave., SW.  
Washington, DC 20591

April 14, 2020

The Honorable Maria Cantwell  
Committee on Commerce, Science,  
and Transportation  
United States Senate  
Washington, DC 20510

Dear Senator Cantwell:

This letter transmits the Federal Aviation Administration's (FAA) report to Congress on an evaluation of alternative noise metrics as directed by Senate Appropriations Report 116-109 (pg. 42) for fiscal year 2019 and the requirements of Section 188, "Study regarding day-night average sound levels", of the FAA Reauthorization Act of 2018 (the Act) (Pub. L. 115-254).

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Sincerely,

A handwritten signature in black ink that reads "Steve Dickson".

Steve Dickson  
Administrator



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Office of the Administrator

800 Independence Ave., SW.  
Washington, DC 20591

April 14, 2020

The Honorable Sam Graves  
Committee on Transportation  
and Infrastructure  
House of Representatives  
Washington, DC 20515

Dear Congressman Graves:

This letter transmits the Federal Aviation Administration's (FAA) report to Congress on an evaluation of alternative noise metrics as directed by Senate Appropriations Report 116-109 (pg. 42) for fiscal year 2019 and the requirements of Section 188, "Study regarding day-night average sound levels", of the FAA Reauthorization Act of 2018 (the Act) (Pub. L. 115-254).

Section 188 of the Act directed the FAA to submit a report evaluating alternative noise metrics to the current average day-night level standard to the appropriate Congressional committees. While not directed by the Act to include as a report, the information contained in the document also fulfills the FAA's response to Section 173.

We look forward to continued collaboration with your staff and would be happy to schedule time to brief you further if desired.

We have sent identical letters to Chairman Wicker, Chairman DeFazio, and Ranking Member Cantwell.

Sincerely,

A handwritten signature in black ink that reads "Steve Dickson". The signature is fluid and cursive, with the first name "Steve" and last name "Dickson" clearly legible.

Steve Dickson  
Administrator



Federal Aviation  
Administration

# Report to Congress

## FAA Reauthorization Act of 2018 (Pub. L. 115-254) Section 188 and Sec 173

April 14, 2020



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## 1. Introduction

Since its inception, the Federal Aviation Administration (FAA) has worked to better understand, quantify, and address noise concerns from aircraft. As part of this effort, various noise metrics have been developed over several decades of research to inform federal policies. As will be discussed in this report, no single metric can cover all situations due to the dynamic acoustical and operational characteristics of aviation noise. The appropriate use of noise modeling and noise measurement will also be reviewed and the context in which each are applicable are discussed.

Congress directed an evaluation of alternative metrics in Senate Appropriations Report 116-109 (pg. 42) for fiscal year 2019 and the FAA Reauthorization Act of 2018 (Pub. L. 115-254) requested the FAA to provide this report in response to **Sec. 188: Study regarding day-night average sound levels. Within 1 year the Administrator shall evaluate alternative metrics to current average day-night level standard, such as use of actual noise sampling to address community airplane noise concerns.**

While not directed to include in a report, the information contained in this document also fulfills the FAA's response to **Sec. 173: Alternative airplane noise metric evaluation. Within 1 year complete the ongoing evaluation of alternative metrics to the current Day Night Level (DNL) 65 standard.**

## 2. Purpose of Noise Metrics for Environmental Regulation and Policy

This section introduces the topic of noise and the FAA's use of noise metrics for environmental regulation and policy. "Noise" is defined as unwanted sound. The term "noise metric" refers to a type of noise measurement or noise descriptor. Sound itself is a complex phenomenon, which varies in level over time as well as frequency content.<sup>1</sup> Therefore, many noise metrics exist in order to capture and include the various aspects of sound; no single noise metric can cover all situations. The FAA uses noise metrics for two primary purposes:

1. To assess community noise exposure through requirements under the National Environmental Policy Act (NEPA) and other related noise programs like 14 CFR Part 150.
2. To assess aircraft certification through 14 CFR Part 36.

The noise metrics used for each of these purposes are different as they address different characteristics of noise as will be described below.

### 2.1 Community Noise Exposure

Community responses to noise vary from person to person, even if noise levels do not change. However, changes in noise exposure affect individual and community responses, and substantial increases in man-made noise can have a negative impact. Consequently, it is

<sup>1</sup> Frequency content refers to the timbre of a sound, often comprised of a collection of pitches, or frequencies.

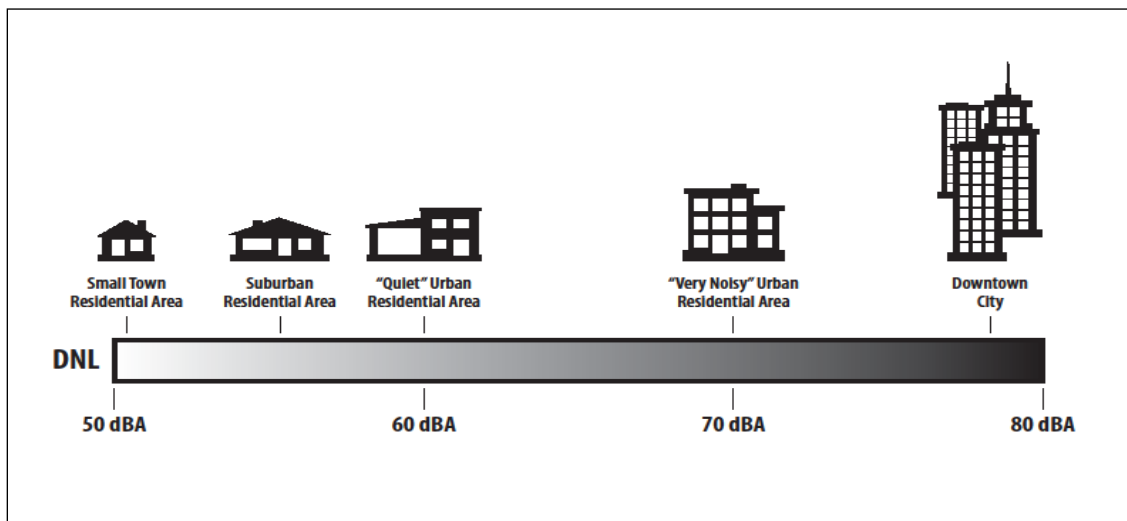
important to understand which characteristics of noise cause a negative response and how exposure to noise with those characteristics affects people's lives.

In order to reflect human response to sound equitably across communities, a meaningful metric or set of metrics should:

- Have a highly reliable relationship between noise exposure and people's response to noise.
- Consistently be applied uniformly in communities surrounding airports.
- Account for noise level, duration, and time of occurrence.

The Day-Night Average Sound Level (DNL) incorporates all of these elements and is the metric FAA uses to inform environmental decision making for noise.

As stated in the previous section, "noise" is unwanted sound in a community. However, individual expectations regarding noise may vary based on different factors, including whether the community is in a quiet rural area or a bustling downtown city. For example, a new, potentially intrusive noise may generally be more noticeable in a quiet rural area compared to an urban environment, even though the overall noise levels can be higher in an urban environment. Thus, the ambient (or background) sound level affects how people perceive new noise sources. "Ambient" sound is defined as the existing acoustic environment to which a potential intrusive sound is being compared. Figure 1<sup>2</sup> shows typical existing ambient sound levels (i.e., Day-Night Average Sound Level [DNL]; see Section 3 for a discussion of DNL) ranging from a "small town residential area" to a "downtown city."



**Figure 1. Typical Day-Night Average Sound Levels**

Common community noise sources include sources inside and outside of buildings. For example, a person indoors can experience the noise from vacuum cleaners, air conditioners, televisions, etc. Example sources of outdoor noise entering a house include lawn mowers, vehicular traffic, railroads, and aircraft. A new, potentially intrusive noise source can range from acceptable to unacceptable depending on a number of factors, including the following:

<sup>2</sup> U.S. Environmental Protection Agency. 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.

- Magnitude of the noise level relative to ambient sound levels.
- Character of the noise.
- Number, time of day, and elapsed time of noise events.

For these reasons, a metric responsive to cumulative noise exposure over the full range of aircraft operational conditions is most appropriate to assess community noise exposure.

## 2.2 Aircraft Certification

The purpose of the noise certification process is to ensure that the latest available safe and airworthy noise reduction technology is incorporated into new aircraft designs, thereby minimizing aircraft noise levels experienced by communities.

The Federal Aviation Administration applies noise certification standards to regulate the maximum noise level that an individual civil aircraft can emit. The United States aircraft noise standards are defined in the Code of Federal Regulations Title 14 Part 36 – Noise Standards: Aircraft Type and Airworthiness Certification (14 CFR Part 36). Rigorous noise measurement procedures are used in the aircraft certification process. For aircraft certification, single aircraft event metrics are most appropriate for finding compliance. In the case of U.S. large airplane and helicopter regulations, the increased designation by “stage” for such applicable standards are an indication of noise stringency increases that lower the maximum allowable noise levels.

As noise reduction technology matures, the FAA works with the international community to determine if a new stringent noise standard is appropriate. If so, the international community, through the International Civil Aviation Organization’s Committee on Aviation Environmental Protection, embarks on a comprehensive analysis to determine a new noise standard.

The FAA publishes certificated noise levels in the advisory circular, “Noise Levels for U.S. Certificated and Foreign Aircraft.” This advisory circular provides noise level data for aircraft certificated under 14 CFR Part 36 and categorizes aircraft into their appropriate “stages.” Any aircraft that is certified for airworthiness in the U.S. must comply with noise standard requirements to receive a type certificate.

## 3. Noise Metrics Acoustic Background and History

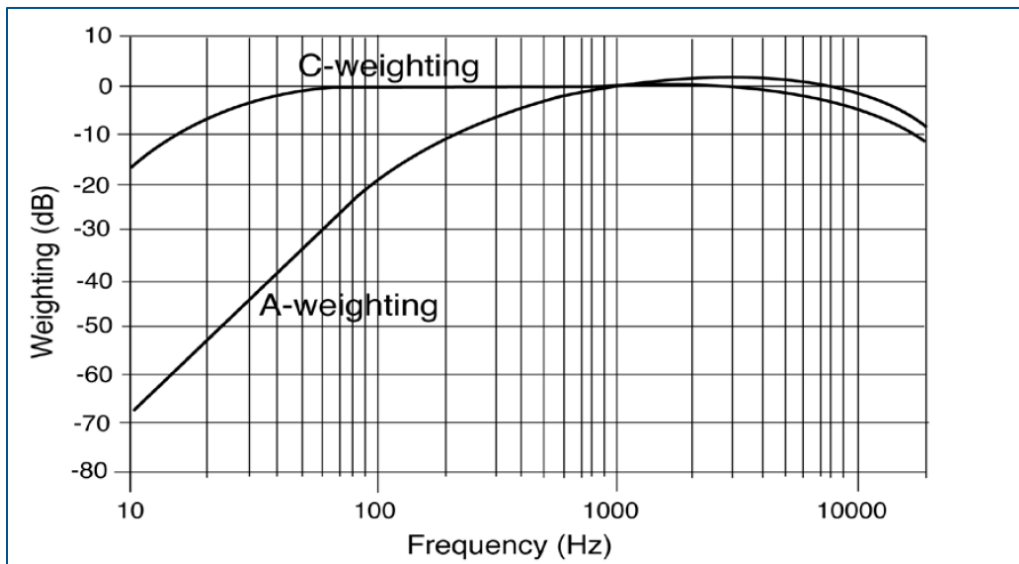
### 3.1 Background on Acoustical Frequency Weighting

Many metrics used to predict or describe noise effects corresponding to the human response to noise rely on A-weighting to express the spectral (frequency) content of noise as a single-valued number. First identified in the 1933 Fletcher-Munson curves,<sup>3</sup> the A-weighting network intentionally focuses on frequencies in the mid-range and is less influenced by both low and high frequency sounds. A-weighted noise levels correspond better to human response to noise<sup>4</sup> than do other weightings.

<sup>3</sup> Fletcher, H. and W.A. Munson. 1933. Loudness, Its Definition, Measurement and Calculation. Journal of the Acoustical Society of America. Volume V. October.

<sup>4</sup> Federal Railroad Administration. 2012. High-Speed Ground Transportation Noise and Vibration Impact Assessment. U.S. Department of Transportation. Office of Railroad Policy and Development. DOT/FRA/ORD-12/15. September.

The A-weighting network was originally developed for sounds of relatively low level. Additional B- and C-weighting networks were developed for application to sounds of increasing absolute level. The B-weighting network had little use in noise analyses, however, and was eventually dropped from the sound level meter standard. Figure 2<sup>5</sup> shows the frequency response characteristics of A- and C-weighting.



**Figure 2. Frequency Response Characteristics of A- and C-Weighting.**

The rationale for favoring A-weighted noise metrics can be traced to the very first community noise survey,<sup>6</sup> and for the convenience of manufacturing analog sound level meters. Modern digital sound level meters can easily measure sound with various weightings and/or at individual frequencies.

In some cases, no weighting is used, which is referred to as a “linear” decibel value, and simply denoted dB.

C-weighting (dBC) is currently used for certain applications, such as loud, impulsive noise or noise sources with substantial low frequency content (e.g., sonic booms, commercial space launches, or artillery ranges). C-weighting has essentially little to no weighting between 31.5 hertz (Hz) and 8 kilohertz (kHz), and thus is similar to a “linear” decibel (dB) value.

Measurement of sound includes both frequency and temporal characteristics. Various frequency weightings, such as A-weighting as previously discussed, allow sound measurements with different frequency or spectral content to be represented by a single number.

The time varying nature of sound levels can be characterized by cumulative and single event metrics. Maximum sound level over a given time interval ( $L_{max}$ ) can be measured as well, but depending on how much levels vary, the  $L_{max}$  may not be representative of longer-duration measurements.

<sup>5</sup> ANSI S1.4 -1983 “Specification of Sound Level Meters.”

<sup>6</sup> Fletcher, H., A.H. Beyer, and A.B. Duel. 1930. “Noise Measurement,” in City Noise, Report of the Noise Abatement Commission, Department of Health, City of New York.

## 3.2 History of Modern Noise Metrics

The framework of modern noise metrics (including DNL) can be traced back to the Composite Noise Rating (CNR) of the 1950s.<sup>7,8,9</sup> The CNR began in a form where aircraft noise spectra<sup>10</sup> were compared to reference spectra at various levels. The CNR included adjustments for time of day, ambient conditions, and other factors. By the 1960s, the CNR had evolved into the Noise Exposure Forecast (NEF)<sup>11</sup> which accounted for multiple noise events. These early noise metrics were later replaced due to the acknowledgement of the need to account for noise level, duration, the number of noise events, and time of day.

The effort to develop a noise metric to evaluate noise in the vicinity of an airport began in California in 1969 with the adoption of Public Utilities Code Section 21669:

*The department [of Aeronautics] shall adopt noise standards governing the operations of aircraft and aircraft engines for airports operating under a valid permit issued by the department to an extent not prohibited by federal law. The standard shall be based upon the level of noise acceptable to a reasonable person residing in the vicinity of the airport.*

In 1970, the California Aeronautics Board adopted the community noise equivalent level (CNEL) as the measurement of an airport's "noise footprint."<sup>12</sup>

In 1972, Congress passed the Noise Pollution and Abatement Act (commonly referred to as the Noise Control Act), which directed the U.S. Environmental Protection Agency (EPA) to coordinate the programs of all federal agencies relating to noise research and noise control and to publish information on the levels of environmental noise necessary to protect the public health and welfare with an adequate margin of safety;<sup>13</sup> however, the authority to manage aviation noise was retained by the FAA. In 1974, EPA, in its "Levels"<sup>14</sup> document, recommended DNL (also expressed as  $L_{dn}$ ) as the best metric to describe the effects of environmental noise in a simple, uniform and appropriate way. DNL replaced or supplemented earlier noise metrics, including CNEL, for federal purposes.

<sup>7</sup> Rosenblith, W.A., K.N. Stevens, and the staff of Bolt, Beranek, and Newman. 1953. Handbook of Acoustic Noise Control, Vol. 2, Noise and Man. USAF Report WADC TR-52-204.

<sup>8</sup> Stevens, K.N., W.A. Rosenblith, and R.H. Bolt. 1953. Neighborhood Reaction to Noise: A Survey and Correlation of Case Histories (A). *J. Acoust. Soc. Am.* Vol 25(833).

<sup>9</sup> Stevens, K.N., and A.C. Pietrasanta. 1957. Procedures for Estimating Noise Exposure and Resulting Community Reactions from Air Base Operations. USAF Report WADC TN 57-10.

<sup>10</sup> "Spectra" refers to a frequency spectrum which typically includes the magnitude of individual frequencies from 31.5 hertz to 20 kilohertz. Hertz is equivalent to cycles/second.

<sup>11</sup> Bishop, D., and M.A. Simpson. 1970. Noise Exposure Forecast Contours for 1967, 1970 and 1975 Operations at Selected Airports. DOT/FAA Office of Noise Abatement, FA68WA-1900. September. BBN Report No. 1863.

<sup>12</sup> CNEL is still in use in California; FAA recognizes it as an alternative metric and has allowed California airports to present annual noise exposure in terms of CNEL, rather than DNL, for consistency with state protocols.

<sup>13</sup> Congress discontinued funding for the EPA Noise Office in 1981.

<sup>14</sup> U.S. Environmental Protection Agency Office of Noise Abatement and Control, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (Mar. 1974).

In 1979, Congress passed the Aviation Safety and Noise Abatement Act (ASNA), which required the FAA to establish:

- (a) A single system of measuring noise, for which there is a highly reliable relationship between projected noise exposure and surveyed reactions of people to noise, to be uniformly applied in measuring noise at airports and the areas surrounding such airports; and
- (b) A single system for determining the exposure of individuals to noise which results from the operations of an airport and which includes, but is not limited to, noise intensity, duration, and time of occurrence.<sup>15</sup>

Taking into consideration existing information on noise metrics, in 1981, in accordance with ASNA, the FAA adopted DNL as its standard metric. The FAA uses the DNL metric for purposes of determining an individual's cumulative noise exposure and for land use compatibility under 14 CFR part 150. The FAA also uses DNL for assessing the significance of predicted noise impacts under NEPA.

## 4. Noise Metrics Overview

This section provides background on the range of noise metrics most commonly used for evaluations of transportation noise or for other related purposes. Sections 5 and 6 will then introduce where these metrics are in active use by the FAA or other agencies for regulatory purposes.

### 4.1 Cumulative Metrics

Cumulative noise metrics consider both the sound level and the duration, and are useful in quantifying long-term community noise exposure. Depending on the situation, different length of time periods, such as hourly, daily or annual can be considered by cumulative metrics.

The following are examples of cumulative noise metrics.

#### **Level Equivalent ( $L_{eq}$ )**

The Level Equivalent ( $L_{eq}$ ) is the equivalent continuous sound level in decibels, equivalent to the total sound energy measured over a stated period of time.  $L_{eq}$  is essentially the average sound level during the measurement interval and takes into account the cumulative effect of multiple noise events.

#### **Day-Night Average Sound Level (DNL)**

The DNL noise metric captures all the acoustic energy within a 24-hour period, adding a 10 dB penalty between the hours of 10:00 p.m. and 7:00 a.m. to account for people's increased sensitivity to noise at night. Night-time ambient sound levels are often approximately 10 dB lower than daytime sound levels, so the 10 dB adjustment can also be thought of as

<sup>15</sup> 49 U.S.C. § 47502(1)(A)(B), (2), (3).



compensating for this drop-in sound level. DNL is usually expressed in terms of A-weighted sound levels, but other frequency weightings can be used, such as C-weighting (i.e., CDNL).

DNL represents an average day of hourly weighted Leq noise levels as shown in the schematic below.



DNL is also most often considered commutatively over an Average Annual Day and provides a consolidated summary of the annual noise exposure. The American National Standards Institute (ANSI) comments<sup>16</sup> on the appropriateness of the annual average DNL with respect to long-term community noise exposure: “Ordinarily, land-uses are long-term, continuing nature, and the yearly day-night average sound level is appropriate for these land uses. For other land uses, compatibility is to be assessed by the average sound level during the time interval of interest for the land use involved.”

### Community Noise Equivalent Level (CNEL)

The Community Noise Equivalent Level (CNEL) metric, used in California<sup>17</sup>, is similar to the DNL metric, but in addition to the 10 dBA nighttime penalty, it also adds a 4.77 dBA penalty for sound levels occurring during the evening hours (7:00 p.m. to 10:00 p.m.).

## 4.2 Single Event Metrics

Single event metrics focus attention on the noise attributes of individual noise events such as an aircraft flyover.

### Sound Exposure Level (SEL)

The SEL metric captures all the acoustic energy of a noise event and normalizes it as if the event occurred in one second. The SEL takes into account both sound level and duration, and therefore allows direct comparison between two different noise events with different durations and/or sound level. The SEL (in conjunction with number of daytime and nighttime noise events) also can be used to calculate DNL.

### Maximum Sound Level ( $L_{max}$ )

Maximum sound level ( $L_{max}$ ) is the maximum sound level measured within a desired measurement interval.

<sup>16</sup> “Sound Level Descriptors for Determination of Compatible Land Use” (ANSI S12.40-1990).

<sup>17</sup> CNEL may be used in lieu of DNL for assessment of FAA actions in California.

### 4.3 Operational-Acoustic Metrics

“Operational-Acoustic” refers to metrics such as Number-above (NA), Time-above (TA), and Time-audible. These types of metrics include non-acoustic information, such as number of aircraft or time elapsed exceeding a certain noise level threshold. This type of metric is a linear measure (as opposed to logarithmic), which in some situations can aid in providing supplemental noise information to the public. Contours (isopleths) of these of Operational-Acoustic metrics can be superimposed on maps showing noise level contours from acoustic metrics, such as DNL.

#### Number-above (NA)

The NA metric combines single event noise level information with aircraft movement data. NA contours commonly show the number of aircraft above a given noise level threshold over a specified time period (e.g., 70 dBA and 24 hours).

#### Time-above (TA)

The TA noise metric measures the total time, or percentage of time, that the A-weighted aircraft noise level exceeds an indicated level. TA correlates linearly with the number of flight operations and is also sensitive to changes in fleet mix.

#### Time-audible

The Time-audible metric quantifies the duration at which noise from a transient noise source occurs at a noise level greater than the existing ambient noise level. The noise source must also be detectable by a human observer with normal hearing, who is actively listening.

This metric is highly dependent upon an accurate representation of ambient sound levels, both temporally and geo-spatially. For example, a listener’s particular location and time at that location would need accurate and reliable ambient sound level data for comparison with accurate aircraft noise levels. For these reasons, the Time-audible metric can be difficult to represent accurately in areas with dynamic or variable ambient noise levels.

For typical vehicle noise levels, this metric is most applicable for projects within or involving noise sensitive areas at very low and constant ambient noise levels, such as national parks. Low and constant ambient noise levels are desired because this metric is most sensitive where the source noise is distinguishable from the ambient noise.

### 4.4 Low Acoustic Frequency Noise Metrics

**Pounds Per Square Foot (PSF):** A direct measure of the peak overpressure from an acoustical event. Most often considered for high intensity noise events where structural concerns are relevant.

**C-weighted SEL (CSEL) and C-Weighted DNL (CDNL):** Analogous to SEL and DNL, but incorporates a C-weighting to be more responsive to lower acoustic frequency noise. CSEL is the recommended<sup>18</sup> metric for evaluating human response to sonic booms.

<sup>18</sup> National Research Council. 1981. Assessment of Community Response to High-Energy Impulsive Noises. Report of CHABA Working Group 84, W. J. Galloway, Chairman.

## 5. Noise Metrics in use by FAA

As introduced in section 3.2, the DNL noise metric was adopted by FAA to meet the requirements established by ASNA and codified in 14 CFR Part 150. DNL is also used by the FAA in making determinations for Federal Actions it assesses under NEPA as specified under FAA Order 1050.1F. The DNL metric is an example of a cumulative A-weighted<sup>19</sup> noise metric and represents the exposure level over a complete 24-hour period. DNL accounts for the noise level of each individual aircraft event, the number of times those events occur, and the time of day/night in which they occur. DNL includes a 10 decibel<sup>20</sup> (dB) noise penalty added to noise events occurring from 10:00 p.m. to 7:00 a.m. to reflect the increased human sensitivity to noise and lower ambient sound levels at night. To ensure that all of the variable operational conditions over the course of a year are considered, FAA considers the Average Annual Day when calculating DNL<sup>21</sup>. Average Annual Day DNL is used to assess noise from all fixed wing and rotorcraft aircraft in both the vicinity of airports and in the extended airspace.

In addition to regulation of aircraft operations, the FAA's Office of Commercial Space Transportation issues licenses to operate non-federal launch sites and to operate launch vehicles. Commercial space launch vehicles typically produce two different types of noise: launch noise (from rocket engines) and sonic booms (generated during supersonic flight). Launch noise can be assessed using several different noise metrics. The DNL metric has been used for commercial space projects for public disclosure and because the FAA uses the DNL metric when determining significance under NEPA, but its suitability is uncertain primarily because of the relatively small number of noise events (i.e., launches per year). CSEL and CDNL may also be considered in some cases for commercial space noise evaluations.

While DNL is used for all FAA noise-based decision-making purposes, the FAA encourages the use of other supplemental metrics as a communication tool to highlight unique situations where applicable. Section 8 will discuss the use of noise metrics for supplemental purposes.

## 6. Noise Metrics in use by U.S. and State Government (outside FAA)

Federal and state agencies other than the FAA employ similar noise metrics to evaluate a project's noise impacts. For example, the U.S. Department of Housing and Urban Development (HUD), Surface Transportation Board (STB), and U.S. Department of Defense (DOD) also employ the DNL metric to determine Land Use Policy according to Federal Land Use Policy guidelines. The Federal Highway Administration (FHWA) primarily uses the  $L_{eq}$  metric while the Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) use both  $L_{eq}$  and DNL metrics. Daytime  $L_{eq}$  metrics are typically used for activities with little or no nighttime activity, while DNL is used to account for daytime and nighttime activity.

<sup>19</sup> A-weighted metrics weight the acoustic frequency of noise to approximate that of human hearing.

<sup>20</sup> The decibel (dB) is a logarithmic relationship of sound pressure levels, which is designed to collapse a large range of pressure values into a more manageable range. A 10-dB increase is perceived as a doubling of loudness, while a 3-dB increase is perceived as just noticeable to most people.

<sup>21</sup> Average Annual Day DNL may also be noted as Yearly DNL or YDNL

It is important to draw a distinction between a particular noise metric and any accompanying noise threshold values (in decibels) used to inform project or policy determinations. Determinations of threshold values depend on multiple technical and policy considerations that, while related to the choice of noise metric, require separate consideration.

The following examples illustrate how different agencies and departments apply various noise metrics.

## 6.1 Level Equivalent ( $L_{eq}$ ) Metric

FHWA uses the loudest one-hour  $L_{eq}$ <sup>22</sup> to assess impacts associated with highway noise. FHWA's impact criteria for residential receptors has been 67 dBA ( $L_{eq}$ ) (or 70 dBA  $L_{10}$ ) at exterior use areas since 1976. In many cases, highway noise levels peaking in the range of 66 dBA ( $L_{eq}$ ) often are in the range of 65 DNL if measured over a 24-hour period.

FHWA employs both "absolute" and "relative" noise impact criteria. "Absolute" refers to the 67 dBA ( $L_{eq}$ ) threshold for noise-sensitive outdoor use areas, including those of residences. "Relative" noise criteria refer to a potential increase in noise level due to a highway project. FHWA allows individual states to determine their own "relative" noise criteria which can vary between 5 and 15 dBA above ambient sound levels, defined as a "substantial increase." Impacts can occur under one, the other, or both; at which point the highway agency must consider abatement for those impacts.

## 6.2 DNL and $L_{eq}$ Metrics

Originating from FTA guidance<sup>23</sup>, The FTA and FRA<sup>24</sup> essentially use the same noise metrics and procedures, including consideration of existing ambient noise levels and project noise levels for environmental noise impact analysis as shown in Figure 3.

For FTA, these procedures include how to calculate light rail transit noise levels for various trains using consistent configurations and distances from the rail line. Transit bus projects also often include highway elements and may require FHWA noise procedures to be used, in conjunction with FTA noise procedures. The FTA noise manual provides guidance on choosing the correct procedures for such multi-modal projects.

For FRA, existing and project noise levels are expressed in terms of dBA, delineated by times of use. Specifically, the manual requires: " $L_{dn}$  is used for land use where nighttime sensitivity is a

<sup>22</sup> Federal Highway Administration. 23 CFR Part 772: Procedures for Abatement of Highway Traffic Noise and Construction Noise -- Final rule. Federal Register Vol. 75, No. 133, 1 July 2010.

<sup>23</sup> Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment. FTA Report No. 0123. September.

<sup>24</sup> FRA follows FTA guidance for assessments of rail vehicles operating below 90mph. For rail vehicles operating above 90mph further guidance is provided in: Federal Railroad Administration. 2012. High-Speed Ground Transportation Noise and Vibration Impact Assessment. U.S. Department of Transportation. Office of Railroad Policy and Development. DOT/FRA/ORD-12/15. September.

factor;  $L_{eq}$  during the hour of maximum transit noise exposure is used for land use involving only daytime activities.”

Figure 3 is applicable to both  $L_{eq}$  and DNL. Figure 3 shows that the “allowable project noise level” decreases with decreasing existing ambient noise levels. It is interesting to note that a project noise level of DNL 65 dBA covers a wide range of typical ambient noise level conditions as an impact threshold.

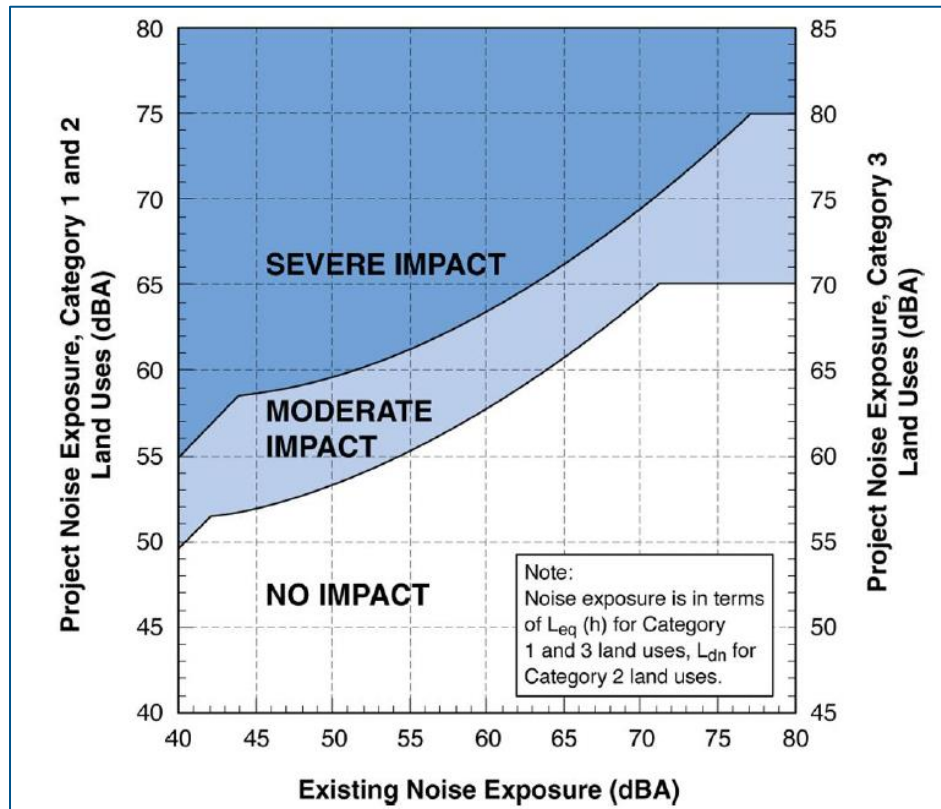


Figure 3. Federal Railroad Administration Noise Metrics/Criteria

### 6.3 30-Day Average DNL Metric

As an example of long-term versus mid- and short-term noise exposure, the FTA uses a 30-Day Average DNL for certain construction projects warranting a detailed construction noise analysis<sup>25</sup>. Construction projects usually have noise metrics and thresholds which consider the temporary nature of construction projects.

<sup>25</sup> Specific procedures for assessing construction noise impacts are provided in 2018 FTA Report No. 0123

## 6.4 DNL Metric

Based on Federal land use guidelines<sup>26</sup> and similar to the way in which FAA assesses compatible land use<sup>27</sup>, HUD<sup>28</sup> considers an environmental noise level of less than DNL 65 dB as acceptable, a noise level between DNL 65 and 75 dBA normally unacceptable, and a noise level above DNL 75 dB unacceptable. HUD also employs a building interior standard of DNL 45 dB. HUD noise analysis considers the effects of highways, railroads, airports, and military installations for all of its property related expenditures, including loans, planning assistance, and support of new construction. Common use of Federal land use guidelines, including the DNL noise metric, provides HUD with a consistent defensible method for considering aircraft noise in its decision making. Where aircraft noise is a consideration, use of a noise metric other than that considered by FAA, would add complexity and could negatively impact the process for granting home loans and property development.

The DOD primarily uses the DNL metric for environmental noise analysis with caveats: “Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 dBA and strongly discouraged in DNL 70-74 dBA. The absence of viable alternative development options should be determined, and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones.”<sup>29</sup> Existing residential development is considered as pre-existing, incompatible land use.

The DOD promotes long-term compatible land use in the vicinity of military installations via the Air Installations Compatibility Use Zones (AICUZ) program. DOD employs detailed land use compatibility recommendations based on Standard Land Use Coding Manual (SLUCM) land use codes and DNL or CNEL noise areas on and around air installations.

AICUZ studies use the A-weighted DNL noise descriptor except in California, where the CNEL descriptor is used. Supplemental noise metrics may also be used to augment the DNL or CNEL analysis as noted by the Federal Interagency Committee on Urban Noise (FICUN). Since land use compatibility guidelines are based on yearly average noise levels, aircraft noise contours should be developed based on average annual day operations.

As a minimum, contours for DNL 65, 70, 75, 80, and 85 dBA are plotted on maps for Air Force, Navy, and Marine Corps air installations as part of AICUZ studies. The Army applies Operational Noise Management Program DNL designations of 60–65, 65–75, and greater than 75 dBA at its air installations. Contours below DNL 65 dB are not required but may be provided if local conditions warrant discussion of lower aircraft noise levels, such as in rural and desert areas, or where significant noise complaints have been received from areas outside DNL 65 contours.

<sup>26</sup> Federal Interagency Committee on Urban Noise. 1980. Guidelines for Considering Noise In Land Use Planning and Control. June.

<sup>27</sup> 14 CFR Part 150.

<sup>28</sup> 24 CFR Part 51.

<sup>29</sup> Department of Defense Instruction 4165.57 (August 31, 2018).



Supplemental noise metrics may be used to augment DNL and CNEL noise analyses to provide additional information to describe the noise environment in the vicinity of air installations.

The STB regulates and decides disputes involving railroad rates, railroad mergers or line sales, and certain other transportation matters. The STB environmental review regulations for noise analysis<sup>30</sup> have the following criteria:

- An increase in noise exposure as measured by a DNL of 3 dBA or more.
- An increase to a noise level of DNL 65 dBA or greater.

If the estimated noise level increase at a location exceeds either of these criteria, STB estimates the number of affected receptors (e.g., schools, libraries, residences, retirement communities, nursing homes) and quantifies the noise increase. The two components (3 dBA increase, DNL 65 dBA) of the STB criteria are implemented separately to determine an upper bound of the area of potential noise impact. However, noise research indicates that both criteria components must be met to cause an adverse noise impact.<sup>31,32</sup> That is, noise levels would have to be greater than or equal to DNL 65 dBA and increase by 3 dBA or more for an adverse noise impact to occur.

## 6.5 Comparable International Noise Metrics (LAeq 16h, Lden)

Airports in the United Kingdom use similar cumulative noise metrics as used in the United States, such as the LAeq,16hr and Lden metrics.

### 6.5.1 LAeq,16hr

This noise metric is the A-weighted equivalent continuous noise level, assessed over an average daytime / evening period (7:00 a.m. to 11:00 p.m.) in the summer months. This metric was selected as a result of the United Kingdom Aircraft Noise Index Study<sup>33</sup> social survey which measured human response to aircraft noise expressed by a sample of people living at different places around five English and one Scottish airport. This study found that a ten-decibel nighttime noise penalty was not warranted for these particular airport communities.

### 6.5.2 Lden

In 2002, the European Commission published Directive 2002/49/EC, establishing a common environmental noise indicator for the European Union.<sup>34</sup> The Lden is the A-weighted equivalent continuous noise level, evaluated over an annual average 24-hour period, with a 10-dB penalty added to the levels at night (11:00 p.m. to 7:00 a.m.) and a 5 dB penalty added to the levels in the evening (7:00 p.m. to 11:00 p.m.) to reflect people's increased sensitivity to noise during these periods.

<sup>30</sup> 49 CFR 1105.7e(6).

<sup>31</sup> Coate, D. 1999. Annoyance Due to Locomotive Warning Horns. Transportation Research Board, Transportation Noise and Vibration Subcommittee A1FO4. San Diego, CA. August 1-4.

<sup>32</sup> Surface Transportation Board. 1998. Draft Environmental Assessment for Canadian National and Illinois Central Acquisition, Finance Docket No. 33556.

<sup>33</sup> Survey of noise attitudes 2014: Aircraft CAP 1506, 2017

<sup>34</sup> Survey of noise attitudes 2014: Aircraft CAP 1506, 2017

## 7. Role of Noise Measurements vs. Noise Modeling

Aircraft noise measurements and noise models have different attributes and roles.

Noise measurements are used for the aircraft certification process, as described in Section 2.2. Noise measurements are also an integral part of the data required for noise modeling; where carefully controlled measured aircraft (source) noise levels by aircraft type and model form the basis of the noise information utilized by aviation noise models. In contrast to these carefully controlled noise measurements, noise measurement data collected in dynamic “real world” situations from noise monitors in the vicinity of an airport can include various sources of error (as will be discussed later in this section).

Noise modeling refers to the use of computational models to generate noise results at single locations, or over a grid of locations. Modeled noise contours at various noise levels, usually in units of decibels, can also be plotted to show regions of equal noise exposure. Noise measurements provide the aircraft source noise data for the various aircraft types and are used by the FAA Aviation Environmental Design Tool (AEDT)<sup>35</sup> for its noise calculations. These data are also validated against noise certification data to ensure accuracy. The FAA uses AEDT to dynamically model aircraft performance in space and time to predict fuel burn, air emissions, and noise levels. This type of modeling allows the input of detailed airport runway configurations, aircraft fleet mix and operations, flight corridors, and a detailed layout of land use and communities adjacent to the airport. Noise modeling allows the overlay of noise contours or single location noise values on detailed land use and community mapping. Noise modeling is used to assess a wide variety of proposed federal actions, such as those resulting from airfield changes or changes in airspace management. Many other federal and international agencies that are responsible for noise impact assessment also employ noise modeling techniques.

Due to the need to generate detailed noise results over large areas, noise modeling is the only practical way to accurately and reliably determine geospatial noise effects in the surrounding community when analyzing proposals related to aviation noise. The many challenges and limitations to using noise measurements for evaluating airport vicinity noise are summarized below:

- Non-aircraft sound can have a large influence on noise monitoring data, which can be difficult to separate from aircraft noise during data post-processing.
- Long-term (e.g., year-long) noise monitoring requires regular maintenance and calibration of the individual noise monitors on a continuous, year-round basis, which has considerable costs.
- To ensure the same accuracy and fidelity of data generated by noise models, an extremely large number of noise monitoring locations is required. (e.g. tens of thousands of noise monitors, collecting year-round data in the vicinity of an airport would be needed to match the fidelity and accuracy of noise modeling).
- Noise monitoring data is not capable of analyzing either “what if” scenarios or proposed future action airport and air space scenarios.

<sup>35</sup> Data is managed by the European Organization for the Safety of Air Navigation (EUROCONTROL) through the Aircraft Noise and Performance (ANP) database



Airport vicinity noise measurements are therefore not appropriate for assessing environmental project determinations or for considering single project validation of noise modeling results. While these limitations make it unsuitable for “real world” noise measurements to consistently inform environmental decision making, the FAA does review noise measurement data when provided as part of an environmental report. In cases where data from modern, well maintained noise monitoring systems are provided, a close agreement between measured and modeled results is typically found, which further validates noise modeling accuracy.

The different roles of aviation noise measurements and modeling are also understood in the international aviation community. For example, the European Civil Aviation Conference states that “the measurement of long-term sound exposures from aircraft is not normally possible as it would require acceptable weather conditions and 100% functional instrumentation and data collection for the entire time period of interest—normally up to 12 continuous months. (And to generate even rudimentary contours this would have to be done at a very large number of locations.)”<sup>36</sup> The United Kingdom’s Civil Aviation Authority states that provided “sufficient noise measurements are collected from a large enough number of locations and that the data is normalised appropriately, it is relatively straightforward to produce validated noise estimates. There are, however, a number of difficulties and limitations with such simplistic models. Data from a large number of measurement sites would be extremely expensive and time consuming to collect and process for a major airport, especially if aircraft noise contours were required on a regular basis. Further, such models do not provide a capability to assess the effects on the contours of changes to aircraft flight profiles, for forecasting or ‘what if’ analyses.”<sup>37</sup>

Other domestic federal state and local agencies, including all federal domestic transportation agencies also employ modeling for noise level predictions when conducting noise measurements would be impractical.

While airport noise monitoring is not generally used for predictive purposes, a noise monitoring program is often a useful tool to inform the airport and neighbors about current aircraft activity and corresponding noise levels in the community. This type of noise monitoring may be accomplished via a permanent noise monitoring system; however, these systems can be quite sophisticated and require numerous permanent noise monitoring stations distributed throughout the community adjacent to the airport.

## 8. Role of Supplemental Metrics

As discussed in Section 3, FAA’s environmental decision-making for noise must use a metric that considers the magnitude, duration, and frequency of the noise events under study. The DNL noise metric uniquely meets these requirements. However, in specific situations, additional information focused on a more targeted type of noise exposure may require the use of supplemental noise metrics.

<sup>36</sup> European Civil Aviation Conference. 2016. CEAC Doc 29 4th Edition Report on Standard Method of Computing Noise Contours around Civil Airports Volume 1.

<sup>37</sup> D.P. Rhodes, and J.B. Ollerhead. 2001. Aircraft Noise Model Validation. Environmental Research and Consultancy Department, Civil Aviation Authority, Internoise.

Individually, supplemental metrics may not fully consider the magnitude, duration, and frequency of the noise events, but may be used to support further disclosure and aid in the public understanding of community noise exposure.<sup>38</sup> Supplemental noise analyses are often useful to describe aircraft noise exposure from unique operational situations or for noise sensitive locations to assist in the public's understanding.

For example:

- Single event metrics like SEL and Lmax or Leq-type metrics associated with specific time periods may be useful in categorizing the noise associated to short-term activities or from individual flights, but do not fully consider the number of flights or account for the operational variations over a longer-term period.
- Operational-Acoustic metrics like NA and TA provide an alternative way to consider noise exposures over longer time periods while emphasizing details about aircraft operational characteristics, but do not fully consider the cumulative intensity of aircraft noise.
- For typical vehicle noise levels, time audible provides a comparison of aviation noise to the underlying ambient noise levels, but is only a practical consideration where ambient noise occurs at relatively low constant levels.

There is no single supplemental metric that is preferable in all situations and the selection of an appropriate supplemental metric depends on the circumstances of each analysis. However, where warranted, consideration of established supplemental metrics is encouraged.

In addition to the established supplemental metrics discussed above, ongoing research activities sponsored by the FAA and the broader research community are working to develop a greater understanding of other noise-related impact criteria. New supplemental metrics based on this research could then be developed.

Examples of these potential supplemental metrics include:

- N75 (Speech Interference): Considers speech interference (i.e., disruption) between a speaker and listener at a normal conversation distance.
- % Awakening (Sleep Disruption): Based on a standard ANSI<sup>39</sup> developed to predict sleep disturbance in terms of the metric "percent awakenings" or numbers of people awakened.
- Leq (8) (Learning): Based on a standard ANSI has developed<sup>40</sup> to consider the effects of noise on classroom learning.

<sup>38</sup> For example, the FAA's 2005 Environmental Impact Statement for the Modernization of Chicago O'Hare International Airport provided supplemental noise metrics (SEL, Lmax, and TA).

<sup>39</sup> ANSI/ASA S12.9-2008. 2008. Part 6 Quantities and Procedures for Description and Measurement of Environmental Sound—Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes.

<sup>40</sup> ANSI S12.60-2002. 2002. American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.

- $L_{\max}(c)$  (Rattle): Considers the effects from low frequency aircraft operations<sup>41,42</sup> including the potential to induce “rattle” to structures.<sup>43</sup>

## 9. Summary

In summary, no single noise metric can cover all situations. However, the DNL metric, and similar versions such as  $L_{\text{den}}$ , are being used world-wide to assess aircraft noise effects on communities. In 1992, the Federal Interagency Committee on Noise (FICON) report<sup>44</sup> concluded that DNL is the recommended metric and should continue to be used as the primary metric for aircraft noise exposure. The successor to FICON, the Federal Interagency Committee on Aviation Noise (FICAN) has also reaffirmed this recommendation in their 2018 report<sup>45</sup>.

In accordance with ASNA, the FAA adopted DNL as its standard metric. The FAA uses the DNL metric for purposes of determining an individual’s cumulative noise exposure, for land use compatibility under 14 CFR part 150, and for assessing the significance of predicted noise impacts under NEPA. Federal and state agencies other than the FAA, as well as international agencies, employ similar noise metrics to evaluate a project’s noise impacts.

Table 1 compares the various noise metrics discussed in this report, specifically in terms of ASNA requirements for a metric to account for noise level, time of day, and number of events.

**Table 1. Noise Metrics**

	Noise Level	Time of Day	Number of Events
$L_{\text{eq}}$	✓		✓
DNL	✓	✓	✓
$L_{\text{Aeq}}(\text{hr})$ (e.g. 16hr, 8hr)	✓	✓	✓
$L_{\text{den}}$	✓	✓	✓
CNEL	✓	✓	✓
SEL and CSEL	✓		
$L_{\text{max}}$	✓		
PSF <sup>a</sup>	✓		
NA <sup>b</sup>	✓		✓
TA <sup>c</sup>	✓		
Time Audible <sup>d</sup>	✓		

<sup>a</sup> PSF, or pounds per square foot, is functionally a measure of “noise level” instead of decibels. PSF is typically used as a measure of the peak overpressure of a sonic boom.

<sup>b</sup> NA is the number of noise events above a certain noise level threshold.

<sup>41</sup> Federal Aviation Administration. 2004. Nonmilitary Helicopter Urban Noise Study.

<sup>42</sup> Schomer, P., and R.D. Neathammer. 1985. The Role of Vibration and Rattle in Human Response to Helicopter Noise. U.S. Army Corps of Engineers. Technical Report N-85/14. September.

<sup>43</sup> Hubbard, H.H. 1982. Noise Induced House Vibrations and Human Perception. Noise Control Engineering Journal. Vol. 19., No. 2.

<sup>44</sup> Federal Agency Review of Selected Airport Noise Analysis Issues (FICON), 1992

<sup>45</sup> FICAN Research Review of Selected Aviation Noise Issues (FICAN), 2018

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<sup>c</sup> TA is the time of noise events exceeding a certain noise level threshold.

<sup>d</sup> Time Audible is the amount of time noise events exceed ambient sound levels. This could be interpreted as taking into account the number of noise events.

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Noise modeling is the only practical way to predict geospatial noise effects in a surrounding community when analyzing proposals related to aviation noise. Noise modeling is also necessary for a wide variety of other proposed federal actions, such as those resulting from airfield changes or changes in airspace management. The assessment of these actions requires the review of future case proposals and can therefore only be considered through predictive modeling.

Finally, while the DNL metric is FAA's decision-making metric, other supplementary metrics can be used to support further disclosure and aid in the public understanding of community noise effects.

August 24, 2020

TO: Roundtable Members and Interested Parties

FROM: Sarah C. Yenson, Senior Consultant  
Justin W. Cook, Principal Consultant  
Roundtable Technical Consultant - HMMH

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

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

After analyzing the documents posted, HMMH determines proposed changes and the reason for the changes. The FAA IFP Information Gateway published one update for OAK during this cycle. The next publication is expected on September 10, 2020.

**Important Terms and Items:**

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

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

**Low Importance:**

- None

**High Importance:**

- None

**Open Comment Periods:**

- SID QUAKE TWO at OAK comment period ends September 15, 2020
  - Added: “See Form 8260-15A” to Takeoff Obstacles Notes
  - Added: “RWY 28L, 28R: 1814 ft MSL tower 374520.00N/1222710.00W” to Controlling Obstacles
  - Added: “Reference mag var: KOAK 14E epoch yr: 2015” to Additional Flight Data
  - Email concerns can be sent here:  
[https://www.faa.gov/air\\_traffic/flight\\_info/aeronav/procedures/application/?event=procedure.results&tab=coordination&nasId=OAK#searchResultsTop](https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/?event=procedure.results&tab=coordination&nasId=OAK#searchResultsTop)
  - Documents regarding the SID QUAKE TWO at OAK can be found at  
[https://www.faa.gov/air\\_traffic/flight\\_info/aeronav/procedures/application/?event=directory&directory=0272EEA4F0B8499089F48D5A21F2B81F-OAK&type=acifp&nasId=OAK](https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/?event=directory&directory=0272EEA4F0B8499089F48D5A21F2B81F-OAK&type=acifp&nasId=OAK)

**Next Publication:**

We expect to see updates for the following on the September 10, 2020 publication:

- SJC
  - ILS OR LOC RWY 30L, AMDT 26
    - Currently “Awaiting Publication (NFDC)”

# Noise News

October 2020

Prepared for the SFO Airport/Community Roundtable

## Response to FAA Notice of Proposed Rulemaking for Supersonic Aircraft Standards for Certification

In a press release dated March 30, 2020, the FAA stated that a major step was taken toward reintroducing supersonic commercial jet travel by way of a proposed rulemaking for noise certification standards for new supersonic aircraft. The Notice of Proposed Rulemaking (NPRM) serves the purpose of adding landing and takeoff noise standards for a certain class of new supersonic airplanes. It was available for public comment for 90 days after publication in the Federal Register (April 13, 2020). The public comment period closed on July 13, 2020.

The lack of noise standards for certification of supersonic aircraft up to this point has been a key obstacle to bringing these aircraft to market for manufacturers. Regulations require that aircraft meet standards for certification, so the absence of such standards prevents supersonic aircraft from receiving approval. The Supersonic Level 1 proposed standard would serve as a baseline for developing and adopting standards for future classes of supersonic aircraft, like those with maximum takeoff weights over 150,000 pounds. The NPRM would set a threshold that would be less stringent than Stage 4 certification levels, which most subsonic aircraft currently meet.

## What's Inside

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The FAA received nearly 270 responses to the proposal, with mixed responses. Manufacturer representatives and trade organizations, including the Aerospace Industries Association (AIA), the General Aviation Manufacturers Association (GAMA), NBAA, and Air Line Pilots Association (ALPA) commended FAA’s efforts, noting the data-driven approach. The proposed standard works within the existing framework of certification testing requirements for subsonic jets, so these organizations are confident in FAA’s ability to apply the “same level of rigor” to testing supersonic jets while allowing for innovation.

On the other hand, more than 60 environmental organizations called for the withdrawal of the proposal, noting that it would allow these supersonic aircraft to be noisier at takeoff and landing than new conventional jets. The European Union also expressed concern, noting that the development of international standards within ICAO should take priority over initiatives by any one country. The EU also noted that allowing supersonic standards to exceed subsonic standards may potentially distort the market by providing circumstances for unfair competition with subsonic aircraft.

Bombardier, the Canadian jet manufacturer, agreed with the EU’s take, while other manufacturers with expressed intent to develop supersonic aircraft and engines, like GE, Boom, and Aerion expressed support for the FAA’s NPRM.

Sources: FAA, AINonline

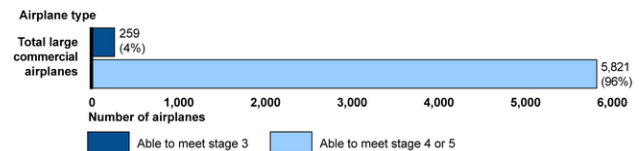
## Government Accountability Office Report on Potential Mandated Stage 3 Phase-Out

On August 20, 2020, the U.S. Government Accountability Office (GAO) published a report titled *AIRCRAFT NOISE: Information on a Potential Mandated Transition to Quieter Airplanes*. The study was conducted based on a provision of the FAA Reauthorization Act of 2018 for GAO to review a potential mandatory phase-out of Stage 3 aircraft.

In the process of this study, GAO reviewed FAA’s analysis of December 2017 fleet data, reviewed January 2020 fleet data from select airlines and airframe/engine manufacturers, and conducted interviews with FAA officials and 35 other stakeholders.

GAO found that most commercial jet aircraft are certified as Stage 3, but most (96 percent) of those can meet more stringent (Stage 4 or Stage 5) noise standards according to FAA’s 2017 analysis based on manufacturer’s data (See Figure 1).

This is primarily because innovation of aircraft technology has outpaced the implementation of noise standards. In addition to this, the decrease in travel in during the COVID-19 pandemic has led airlines to accelerate the retirement of some older, Stage 3 jets, like the McDonnell Douglas MD-80-family. About 86 percent of smaller regional jets and 73 percent of general aviation jets are able to comply with Stage 4 or 5 standards.



Source: GAO assessment of December 2017 Federal Aviation Administration (FAA) noise-based fleet composition analysis and January 2020 aviation stakeholder data. | GAO-20-661

Figure 1. GAO Estimate of The Number of Large Airplanes in the U.S. Commercial Fleet That Are Able to Meet Stage 3 or Stage 4 and 5 Noise Standards, January 2020

Most of these jets are certified as Stage 3 despite being able to meet Stage 4 and 5 standards because the process of recertification is costly and would provide little to no noise reduction benefit. Additionally, a mandatory phase-out of Stage 3 aircraft would mean some operators would incur costs for replacement aircraft sooner than originally planned. Based on interviews with stakeholders, the report found that a mandatory phase-out of Stage 3 certified jets would provide limited noise reduction and other benefits. Additionally, stakeholders indicated that it could be costly and might present other challenges.

Source: GAO



## COVID-19 Impacts

### Changes in Operations, Noise Levels, and Complaints

Following the decline in air traffic that has occurred nation-wide due to the COVID-19 Pandemic, HMMH has worked with airport partners and Envirosuite to examine operations, noise, and complaint data in a kind of “before” and “after” trial. Since March, HMMH has looked not only at the community noise levels without aircraft noise but at how traffic levels, noise levels, and complaints are coming back – quickly in some cases and slowly in others – to their pre-pandemic levels. HMMH analyzed two central research questions:

- How do changes in operations compare with changes in noise levels since the start of pandemic?
- How do changes in operations and noise levels compare with changes in noise complaints since the start of pandemic?

For purposes of data collection and analysis, HMMH defined the “Pre-COVID” period as November 1-March 15; and the “COVID” period as March 16-June 30. HMMH obtained three sets of raw data for each airport from their NOMS database:

1. Hourly complaint data
2. Daily cumulative noise levels (CNEL/DNL)
3. Hourly aircraft operational levels

The results of this analysis for a large commercial airport (Airport ‘A’) are shown in Figure 2 and Figure 3. Polynomial curves were fit to these data sets to assist in understanding trends for each variable and relationships between them during the COVID-19 Pandemic. Figure 2 displays the relationship between operations and complaints and Figure 3 shows the relationship between airport and community noise levels.

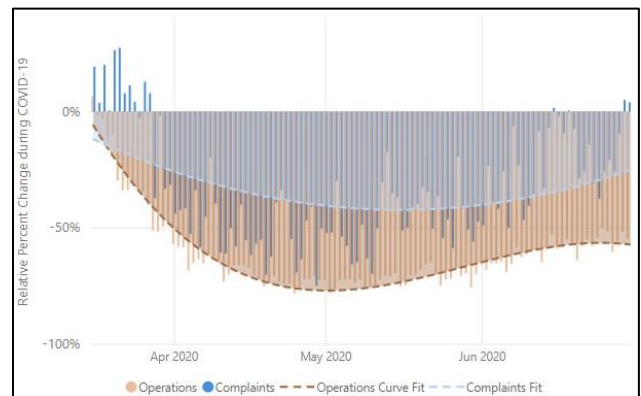


Figure 2. Comparison of Operations and Complaints for Airport A: Large Commercial Service Airport

Source: HMMH 2020

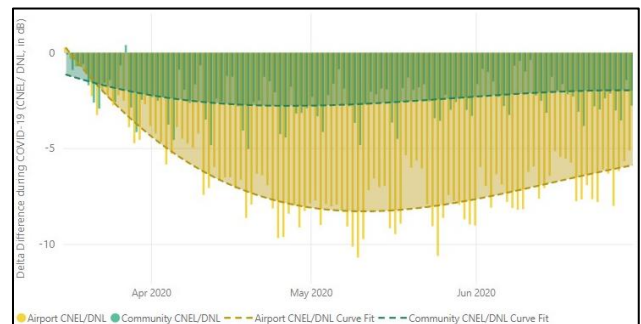


Figure 3. Comparison of Airport and Community Noise Levels (CNEL/DNL) for Airport A: Large Commercial Service Airport

Source: HMMH 2020

The data shows the following:

- Complaints, operations, and noise levels all decreased beginning mid-March
- Daily operations dropped as much as 80 percent by mid-April; they recovered to 40 percent of pre-COVID-19 by end-June
- Noise complaints followed similar trends but did not drop as much percentage-wise
- Average airport cumulative noise levels have dropped by more than 5 dB during COVID
- Community noise levels dropped an average of 2+ dB
- Since late March, community noise has been higher than aircraft noise

Since the start of the pandemic, airlines have retired a lot of older aircraft. HMMH explored how that affects noise levels. The top of Figure 4 presents the average noise per flight – a simple index computed by dividing (logarithmically) the average noise level at all sites by the average number of operations – essentially a Sound Exposure Level (SEL) for a single event.

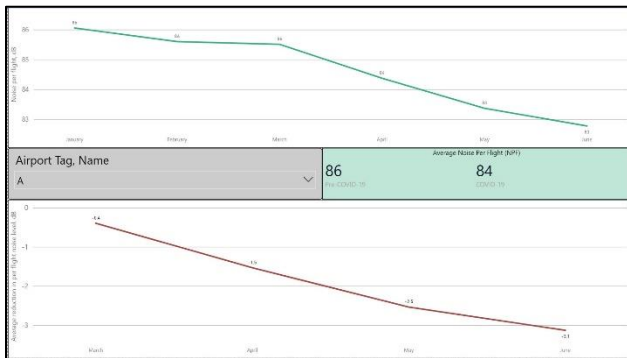


Figure 4. Reduction in Noise per Flight

Source: HMMH 2020

The average has dropped from just over 86 dB in January to just under 83 dB in June. The bottom part of the graphic simply shows the difference compared to average pre-COVID noise per flight. If these changes in fleet mix are permanent, a major noise reduction will have been achieved as the pandemic will have effectively accomplished the Phase out of the remaining Stage 3 aircraft.

Source: HMMH

## Boeing ecoDemonstrator Flight Testing

Boeing began its 2020 ecoDemonstrator flight testing in Glasgow, Montana. Boeing launched the ecoDemonstrator program in 2010 to test new technologies on passenger and cargo jets in flight. NASA has collaborated with Boeing on its ecoDemonstrator program almost every year since 2014. Past research has involved a number of hardware and software innovations – even non-stick coatings to prevent airflow-disrupting bug residue from building up on a wing.

Each year the company selects a different aircraft to be used as the ecoDemonstrator by partnering with an airline or using a Boeing-owned aircraft. This year, Boeing partnered with NASA, Etihad Airlines, and Safran Landing Systems. Boeing is testing the use of new technologies on a 787-10 Dreamliner that will increase cabin sanitation and en-route airspace efficiency, lessen airframe noise, and use quieter a landing gear, all while flying on a mix of sustainable aviation jet fuel.



Figure 5. Boeing's 787-10 Dreamliner ecoDemonstrator

Sources: PRNews, Boeing, AINonline

Many of this year's tests will be focused on aircraft noise and noise mitigation, including a partnership with NASA and Safran Landing Systems. Safran Landing Systems noted that the objective is to reduce noise from landing gear by more than 20 percent. Because modern aircraft engines have been so effective in reducing their noise signature, the landing gear has become one of the largest contributing factors to aircraft noise on approach and landing; it can account for 30 to 40 percent of the external noise upon arrival on modern long-haul aircraft, so a reduction of 20 percent has the potential to make a significant impact in noise reduction.

NASA has long studied aircraft noise. Its Aircraft Noise Prediction Program (ANOPP) software tool is based on years of measuring and understanding how components of an aircraft – the wings, landing gear,

the main fuselage – contribute to the noise you hear when an airplane flies overhead.

The ecoDemonstrator testing will allow NASA to measure the whole package of noise impact: the airframe and propulsion, as well as how they interact with each other. The airframe noise tests use about 1,200 microphones that are attached to the outside of the aircraft or positioned on the ground beneath the flight path. The team plans to examine the 787's noise during flight by measuring noise with the aircraft low over the ground and as it passes over an array of microphones placed directly underneath, either side of, and nearby the flight path.

"This is an opportunity we get very rarely," said Russell Thomas, an acoustics expert at NASA's Langley Research Center in Virginia who is leading what is officially called the Propulsion Airframe Aeroacoustics and Aircraft System Noise Flight Test.

Because of the size of a 787, it's not possible to test it in a wind tunnel or wise to rely solely on complex computer simulations because they may not perfectly represent reality.

"Only by flying can we obtain the most realistic conditions for obtaining the measurements we need. And this is really the first time we've ever been able to attempt the kind of research we've planned," Thomas said.



Figure 6. Microphones attached to the 787-10 Dreamliner ecoDemonstrator

Source: Boeing

The test involves placing 960 microphones on the ground immediately next to and around the main runway at Glasgow Industrial Airport in Montana. Another 31 microphones are located farther away from the runway, and 214 more microphones are temporarily wired into locations on the aircraft itself.

"This is pushing the boundaries of acoustic flight testing. I don't think either NASA or Boeing has ever put so many microphones on the ground or on the aircraft," Thomas said.

Boeing dedicated four days in August to test as many flights as possible over the microphone array during a four- to five-hour window each morning. A total of 23 passes were made over the microphones, with observers saying that the landing gear seemed effective at reducing noise.

Sources: Boeing, Safran Landing Systems, Aviation International News, Airport Noise Report, Simple Flying

## Other Noise News

- Rep. Don Beyer (D-Va.) and Del. Eleanor Holmes Norton (D-D.C.) introduced an amendment to the House version of the National Defense Authorization Act that would create a centralized complaint tracking system for helicopter noise at Washington Dulles International (IAD) and Reagan International (DCA) airports. The measure would also create a community working group to use that information to inform recommendations for dealing with noise in the area.
- On Monday, September 21, 2020, Airbus released details about three hydrogen-fueled concept planes, planned for service by 2035. The three designs, named ZEROe, are different sizes and styles and will be less noisy and zero-emissions, using hydrogen as the primary power source.
- The office of U.S. Rep. Ted Budd announced that the Piedmont Triad Airport Authority has received a \$1.9 million grant through the U.S. Department of Transportation to continue with its program to limit the impact of aircraft noise on residences near the airport.

- San Diego International Airport received an \$18 million grant for its Residential Sound Insulation Program, the Quieter Home Program.
- The Los Angeles World Airports (LAWA) unveiled two mobile-friendly websites that provide information about noise created by aircraft operations at both Los Angeles International and Van Nuys airports. The interactive noise portals give users access to data and multimedia content to help residents understand how different aircraft operations affect noise levels within neighborhoods throughout Los Angeles and surrounding communities
- The FY 2021 Defense spending bill recently passed by the House of Representatives includes \$50 million to fund, for two years, a new program that will provide noise mitigation grants to communities impacted by military aviation noise.

Sources: Washington Post, CNBC, High Point Enterprise News, The San Diego Union-Tribune, CNS News, Airport Noise Report

# Correspondence / Additional Reports

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[SFO Travel Alert – Important Information About COVID-19](#)

[AirTrain Overnight Closure Information for Week of September 28](#)

[Highway 101 construction may affect traffic to/from SFO. Please plan accordingly.](#)



## Press Releases

September 2, 2020

### FOR IMMEDIATE RELEASE:

**CONTACT:** Doug Yakel  
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SF-20-33

### SFO Deploys Its First All-Electric Zero-Emission Buses

*Greener buses cut operating costs and reduce greenhouse gas emissions to reach sustainability goals*

**SAN FRANCISCO** - September 2, 2020 – The San Francisco International Airport (SFO) today announced the deployment of six 40-foot all-electric zero-emission buses and related electric vehicle charging infrastructure. Use of battery-electric buses will cut operating costs and reduce carbon emissions, supporting SFO's Strategic Plan Goal to achieve carbon neutrality by 2021.

"The addition of these all-electric buses to our fleet moves us closer toward a more sustainable world-class airport and helps us reach our aggressive zero-emissions goals," said Airport Director Ivar C. Satero. "Deploying these all-electric buses can help us significantly reduce costs and emissions, while simultaneously improving the passenger experience. My thanks go out to the entire team who made this milestone possible."

In FY 2019, SFO achieved a 41% reduction in GHG emissions from its 1990 baseline, and is developing and implementing plans to achieve up to a 95% reduction. SFO is also one of just a few airports in North America to achieve Level 3 "Optimization" through the Airport Carbon Accreditation program by the Airports Council International (ACI), the foremost advocate for airport operators worldwide.

SFO's 5-Year Strategic Plan (2017-2021) sets a goal of carbon neutrality across airport-controlled operations by 2021. Additionally, SFO works with airline and business partners to drive emission reductions across all activities within the SFO campus. Reduction strategies have included:

- Installation of air conditioning and electrical power to all parked aircraft, resulting in a reduction of 18,300 metric tons of greenhouse gas emissions and saving 1,866,000 gallons of jet fuel; and

- Construction of the AirTrain, an electric-powered greenhouse gas emissions-free light rail system which eliminated over 600 daily bus trips to shuttle passengers between terminals and the Rental Car Center; and
- Creation of a Clean Vehicle Policy to promote the adoption and deployment of low emission vehicles, by both Airport departments and ground transportation providers; and
- Programs to encourage Airport employees to take public transit to and from work; and
- Convening a Sustainable Aviation Fuel (SAF) Working Group composed of airlines, fuel providers, government agencies, researchers, and NGOs to drive use of SAF at SFO.

SFO currently provides buses to shuttle passengers between the terminals and long-term parking garages and other Airport locations. The SFO fleet currently has renewable compressed natural gas (CNG) and diesel-fueled buses, and the six new Proterra Catalyst E2 battery-electric buses will replace the remaining diesel buses in the fleet to run all regular daily routes. Designed and built by Burlingame-based transit manufacturer Proterra, the 40-foot zero-emission buses have 27 seats with luggage racks to comfortably accommodate passengers with their luggage. Since all-electric buses have no combustion engine, passengers will experience a quieter, smoother ride.

In addition to passenger benefits, the all-electric buses significantly reduce operating costs with its batteries equipped to last the entire daily route on a single charge and require no liquid fuel. The Proterra Catalyst E2 buses can be fully charged in under 4.5 hours for an operating range of up to 231 miles. Lower fuel prices and reduced vehicle maintenance costs will result in an estimated savings for SFO of about \$4.5 million during the 12-year lifespan of these six new Proterra buses.

The new all-electric buses replace six renewable diesel buses in the regular operating fleet and will result in the elimination of more than 23.7 million pounds of greenhouse gas tailpipe emissions over the lifetime of these vehicles. SFO expects to purchase additional all-electric buses to replace existing CNG buses for a greener modern fleet.

For more information on SFO's environmental efforts, please visit [www.flysfo.com/environment/your-gateway-green-travel](http://www.flysfo.com/environment/your-gateway-green-travel).

## About San Francisco International Airport

SFO wants you to Travel Well. SFO works with local, state, and federal health officials to protect against COVID-19. Measures include enhanced cleaning protocols, hundreds of hand sanitizer stations, physical barriers, face coverings for everyone, and physical distancing. To learn more visit [flysfo.com/travel-well](http://flysfo.com/travel-well).

SFO offers nonstop service to Asia, South Pacific, Europe, Canada, Mexico, and across the United States. For up-to-the-minute departure and arrival information, airport maps and details on shopping, dining, cultural exhibitions, ground transportation and more, visit [www.flysfo.com](http://www.flysfo.com). Follow us on [www.twitter.com/flysfo](https://www.twitter.com/flysfo) and [www.facebook.com/flysfo](https://www.facebook.com/flysfo).

# Airport Commission's 50<sup>th</sup> Anniversary

Presentation commemorating the  
establishment of the Commission and  
its inaugural meeting held on  
September 1, 1970







A-491 7-16-27 MUN. AIRPORT







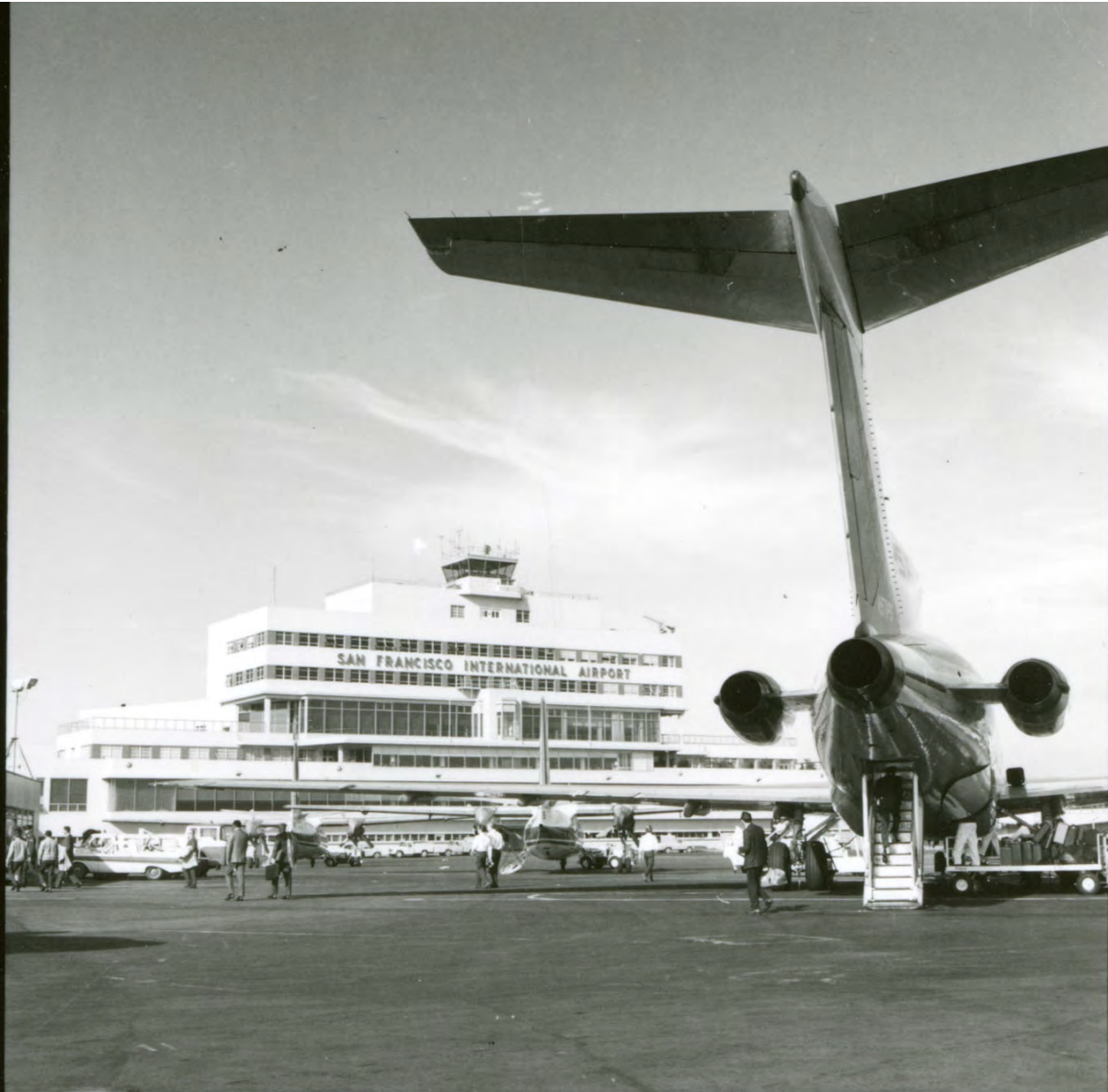
















Key Day Ref. Elections 1970

# CITY and COUNTY PROPOSITIONS

To be voted on at the  
DIRECT PRIMARY ELECTION  
TUESDAY, JUNE 2, 1970



DOCUMENTS

MAY 19 1970

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of the Charter of the City and County of San Francisco.

*Emmery Mihaly*  
Registrar of Voters.

### IMPORTANT NOTICE

In order to avoid congestion and possible delay  
at the polls on election day voters are urged to:

**1. KEEP THE POLLING PLACE CARD ENCLOSED  
HEREWITH. MARK YOUR CHOICES FOR THE VAR-  
IOUS OFFICES AND PROPOSITIONS. TAKE THE  
CARD WITH YOU TO THE POLLS AND YOU CAN  
COMPLETE YOUR VOTING IN LESS THAN TWO  
MINUTES.**

**2. Vote early, if possible.**

*Emmery Mihaly,*  
Registrar of Voters.

**Permanent registration is maintained by VOTING.**

## PROPOSITION D

**Amends Sections 93, 121, 122 and 125; adds Sections  
137, 137.1 through 137.8 inclusive, 138, 138.1, 139,  
139.1 and 139.2; relating to the creation of an Air-  
ports Commission.**

### CHARTER AMENDMENT PROPOSITION D

Describing and setting forth a proposal to the qualified electors of the City and County of San Francisco to amend the charter of said city and county by amending and adding certain sections thereof, all relating to creation of an airports commission as successor to the public utilities commission in the management and control of airports and air transportation facilities owned or operated by the city and county, such charter amendment to be effective on the first

day of the second month immediately following filing with the secretary of state of the legislative resolution and approval thereof.

The Board of Supervisors of the City and County of San Francisco hereby submits to the qualified electors of said city and county at an election to be held therein on June 2, 1970, a proposal to amend the charter of said city and county by amending sections 93, 121, 122, and 125 thereof, and adding sections 137, 137.1, 137.2, 137.3, 137.4, 137.5, 137.6, 137.7, 138, 138.1, 139, 139.1, and 139.2 thereto, reading as follows:

NOTE: Additions or substitutions are indicated by bold-face type; deletions are indicated by ((double parentheses)).

#### Lease of City Property

Section 93. When the head of any department in charge of real property shall report to the board of supervisors that certain land is not required for the purposes of the department, the board of supervisors, by ordinance, may authorize the lease of such property. The director of property shall arrange for such lease for ((a period not to exceed twenty years)) such period as prescribed pursuant to section 93.1 of this charter, to the highest responsible bidder at the highest monthly rent. The director of property shall collect rents due under such lease.

The public utilities commission shall have exclusive power to lease agricultural or other lands used and useful for water department purposes and at the same time available for leasing or rental for agricultural or other purposes and such leases shall be subject to administration by the operating forces of the water department.

((The public utilities commission shall have exclusive power to lease lands now devoted to airport purposes or lands that may hereafter be acquired and devoted to airport purposes for a period not to exceed forty years, and the director of property shall arrange for such lease to the highest responsible bidder at the highest monthly or annual rent, subject to approval of the public utilities commis-

ators and while assigned to such duty they shall receive the compensation fixed for such service. Such assignment shall be governed by seniority of service, subject to a qualifying test by the railroad management as to competency and to state laws as to qualifications and licensing.

((The public utilities commission shall have jurisdiction over the airport now being conducted by the City and County of San Francisco, as well as over any other airport which said city and county may hereafter acquire, maintain or operate. All employees, exclusive of the manager, of the present San Francisco airport, who are actually employed at the present airport operated and maintained by the City and County of San Francisco on the effective date of this amendment and who have been continuously so employed for one year immediately preceding said date shall be continued in their respective positions as if appointed thereto after examination and certification from a list of eligibles and shall thereafter be governed by and be subject to the civil service provisions of this charter. All said employees so continued in their respective positions shall be eligible for like positions in any other airport hereafter acquired, maintained or operated by the City and County of San Francisco.))

#### Airports Commission

Section 137. An airports commission is hereby created, which shall consist of five members, who shall be appointed and who shall be appointed by the mayor and who shall be subject to recall and to suspension and removal in the same manner as elective officers. The term of each commissioner shall be four years, provided that the first five commissioners to be appointed by the mayor to take office upon the effective date of this charter section, shall, by lot, classify their terms so that the term of one commissioner shall expire at twelve o'clock noon on each of the first, second and third anniversaries of such date, respectively, and the terms of the remaining two commissioners shall expire at twelve o'clock noon on the fourth anniversary of said effective date; and on the expiration of these and successive terms of office, the mayor shall appoint commissioners for four-year terms. The compensation of each commissioner shall be One Hundred Dollars (\$100.00) per month.

#### General Powers and Duties of Airport Commission

Section 137.1. The airports commission shall have and succeed to all powers and duties in the management and control of San Francisco International Airport heretofore vested in the public utilities commission. The airports commission shall have possession, management, supervision, operation and control of said airport and of all other airport properties wherever situated as it may acquire or which may be placed under its control. In locating and determining the character and type of improvements and additions, betterments or extension to airport properties under its control, the commission shall in each case first secure the written recommendation of the director of airports, including analysis of cost, service and estimated revenue of all proposed alternatives determined feasible by said director. Subject to the provisions of Section 91 of this charter, the commission shall have the power to purchase, lease or otherwise acquire all such lands, property, improvements or related facilities as it may deem necessary or convenient in the exercise of the authority granted hereunder. Nothing contained herein shall authorize the commission to





COMMUNICATIONS:

None

\*\*\*\*\*

General Manager of Public Utilities Calendar Items:

Mr. Carr, reporting on the progress of the formation of the Airports Commission, said that the members of the new Commission names by the Mayor would be sworn in on August 26, 1970, at 10:00 a.m., in the Mayor's Office. They are as follows:

William E. McDonnell  
Wallace R. Lynn  
John A. Sutro, Attorney  
Joseph P. Mazzola, Business Manager of Plumbers and  
Steamfitters Union Local 38  
William K. Coblentz, Attorney

The appointments were to become effective September 1, the date of the first meeting of the Airports Commission. The time and location-- 2:30 p.m., Room 282, City Hall.

70-223





























Honorable Dianne Feinstein  
United States Senator



Congratulations!  
**50 years**

## **Federal Update—A Snapshot—By Emily Tranter, N.O.I.S.E. Executive Director**

A number of legislative priorities remain on the table for the month of September and early October as Washington increasingly shifts focus to the coming national and presidential election. At the top of this list of priorities is the passage of a continuing resolution to ensure the federal government is funded beyond September 30th. With both parties wary of a government shutdown only weeks before the election, a “clean” resolution, one not attached to other bills, is expected to get the President’s signature by the end of the month, however, as of September 21st, there were still disagreements about the final package and a shutdown was still a possibility. House Speaker Nancy Pelosi released the House stop gap bill on the 21st. **The measure (H.R. 8319) would transfer \$14 billion from the general fund to pay for Airport Improvement Program grants and part of the Federal Aviation Administration’s budget.**

The second priority for Congress before the election was the passage of a new stimulus package aimed at helping various sectors of the economy still suffering due the pandemic. The House passed a \$3.4 trillion bill in May, and Senate leadership has recently proposed a \$500 billion package, although neither bill has the support of the other chamber’s leadership. After negotiations collapsed between House Speaker Pelosi and the Trump Administration last month, it is still possible, although perhaps unlikely, that the two parties will agree on a compromise bill before leaving Washington at the beginning of October.

Justice Ruth Bader Ginsburg’s death carries many implications for the passage of a stimulus bill, as the focus may shift to the political fight over filling her seat on the Supreme Court before or after the November election.

### **Recent N.O.I.S.E. Activities**

#### **NextGEN Advisory Committee (NAC):**

N.O.I.S.E. Board President Brad Pierce participated in the August NextGen Advisory Committee meeting. The discussion at the national advisory board focused on technical delays of implementation of NextGen technologies nation-wide as a result of COVID.

#### **Urban Air Mobility Noise Working Group, Subgroup on Regulation and Policy:**

N.O.I.S.E. Executive Director, Emily Tranter, has been asked to participate in a NASA working group on urban mobility and commercialized UAS use in cities. The first meeting was August 25<sup>th</sup>. The group is comprised of NASA officials, airport staff, and private company representatives such as Uber. The group asked Ms. Tranter to join to give feedback and perspective on community engagement as these new technologies and services roll out in the coming years. We will keep you updated on the group’s work that is not embargoed and alert you to any pertinent impacts to College Park.

**UC Davis Symposium Planning Committee Support:** N.O.I.S.E. Executive Director Emily Tranter was asked by members of the UC Davis Symposium planning committee to provide feedback on possible speakers related to possible congressional action in 2021 on noise legislation. N.O.I.S.E. has been a frequent speaker and collaborator with the UC Davis symposium staff and committee over the years and we look forward to their virtual event in February, 2021.

**Upcoming: N.O.I.S.E. Policy Summit, November, 2020.** As you may know, N.O.I.S.E. holds its annual Policy Summit in conjunction with the National League of Cities City Summit. Because NLC will be virtual this year—N.O.I.S.E. is in the process of finalizing its date and time during the November 18-20 conference. We will be providing final details in the very near future.

# Airport Noise Report



A weekly update on litigation, regulations, and technological developments

Volume 32, Number 30

September 25, 2020

## Metrics

### 27 MEMBERS OF CONGRESS DEMAND FAA REDO ‘WHOLLY INADEQUATE’ REPORT TO CONGRESS ON ALTERNATIVES TO DNL

Some 27 members of Congress told FAA in a letter released today that the agency’s April 14 report to Congress on alternative metrics to FAA’s noise metric of choice DNL is “wholly inadequate” and insisted that FAA “return to the drawing board and meaningfully evaluate alternative metrics to the current DNL 65 average, not just dismiss or ignore them ...”

All but one of the members of Congress signing the letter are also members of the Congressional Quiet Skies Caucus. Following is the letter, dated Sept. 23:

Dear Administrator Dickson:

As Members of the U.S. House of Representatives, we write to express deep concern regarding the Federal Aviation Administration’s Report to Congress dated April 14, 2020, on its findings pursuant to Sections 188 and 173 of the FAA

*(Continued on p. 120)*

## Boston Logan Int’l

### NEW RNAV APPROACH AT BOSTON WILL HAVE NO SIG. NOISE IMPACT, FAA’S DRAFT EA SAYS

The FAA announced Sept. 21 that it is seeking comment on the Draft Environmental Assessment for a proposed new RNAV satellite-based approach procedure for Runway 4-Left at Boston Logan International Airport.

The Draft EA indicates that the procedure would have no significant impact in any environmental category including aviation noise.

The proposed new procedure closely follows the path of the existing visual approach for Runway 4-Left. FAA said it will enhance safety and flight efficiency by providing vertical and lateral guidance to pilots and by enabling air traffic controllers to more precisely monitor arriving aircraft, especially in bad weather. When visibility is low, flights will be able to land on Runway 4-Left, helping to reduce delays that result in late-night arrivals at the airport. Currently, aircraft can land on the runway only in good weather.

A 60-day public comment period for the Draft EA began Sept. 21 and ends on Nov. 20. The FAA will consider and review all substantive comments it receives during the comment period. The agency expects to issue a final environmental determination in 2021. The public can review the Draft EA and submit comments at

*(Continued on p. 121)*

## In This Issue...

**Metrics ...** FAA must redo “wholly inadequate” report to Congress on alternative noise metrics, 27 members of Congress – all but one members of the Congressional Quiet Skies Caucus – tell agency. They insist in letter to FAA Administrator Stephen Dickson that the agency “return to the drawing board and meaningfully evaluate” alternative metrics to DNL - p. 119

**Boston Logan ...** FAA seeks comments on Draft EA for proposed RNAV approach procedure at BOS which finds no significant noise impact from procedure - p. 119

**Noise Grants ...** Two more airports get FAA noise mitigation grants - p. 121

**LAWA ...** Los Angeles World Airports issues RFP for replacement NOMS at LAX, Van Nuys airports - p. 121

**Awards ...** Port of Seattle announces winners of Fly Quiet Awards for Seattle-Tacoma Int’l Airport - p. 122

*Metrics, from p. 119*

Reauthorization Act of 2018 (P.L. 115-254). After conducting a detailed review of the FAA's report, we find it wholly inadequate, failing to meet the mandate in the law.

As you know, Section 188 of the FAA Reauthorization Act of 2018 mandated the FAA to "evaluate alternative metrics to the current average day-night level standard, such as the use of actual noise sampling and other methods, to address community airplane noise concerns." Further, the law directed the FAA to provide Congress with a detailed report on its findings. On April 14, 2020, the FAA released the report, and in addition to reporting on Section 188, the FAA also used this report to address Section 173, which states: "Not later than 1 year after the date of enactment of this Act, the Administrator of the Federal Aviation Administration shall complete the ongoing evaluation of alternative metrics to the current Day Night Level (DNL) 65 standard." It is our assessment that this report entirely fails to seriously analyze and consider alternative metrics to the DNL 65 standard.

First and foremost, the report fails to evaluate well-respected and widely used alternatives, including: the Cumulative Noise Equivalency Level ("CNEL") metric, which California uses to evaluate aircraft and other noise exposures; the ISO 1996-1:2016 ("Acoustics – Description measurement and assessment of environmental noise"), an international standard specifically adopted to identify community noise concerns in general, but airplane noise in particular; and the European alternative to the DNL metric, known as the DENL, or the day-evening-night level metric. The latter noise metric disaggregates evening and night noise levels to address the fact that communities experience noise events differently during the day, the evening and the nighttime sleeping hours. A credible evaluation of alternative noise metrics and the 65 DNL standard would have addressed the correlation between each metric and the known noise impact on communities in a NextGen environment, similar to a comparison done in an FAA-funded 2011 report on replacement metric research. However, in lieu of providing a thorough evaluation, the report merely describes DNL and a number of alternative metrics, while offering an incomplete and at times inaccurate comparison of DNL to those alternatives.

Furthermore, there are glaring absences in the FAA's assessment that render it incomplete. For example, the report fails to analyze complaint data despite the fact that the FAA itself utilized complaint data as a lawful alternative metric in its 2013 federal court case against Helicopter Association International, Inc. Failing to mention any role for complaint data would appear in contrast to FAA's Noise Complaint Initiative begun in the last 12 months, allowing direct reporting of noise events to FAA. The report also lacks the scientific nuance the agency demonstrated in 2019, when the FAA funded a research project at MIT to evaluate metrics and as-

sess the impact of frequent overflights; that study concluded that the Number-Above (NA) metric provided an effective correlation to aircraft noise impacts on the public, but is scarcely mentioned in this report. Even commonly used metrics are overlooked, such as the metrics for construction noise and the concept of sones. Construction noise metrics are regularly employed across the United States and capture greater noise nuance than the DNL standard. Sones represent the perception of loudness and help capture aviation noise annoyance. In our estimation, the FAA report merely stands by the agency's existing DNL metric and enumerates existing methodology with no regard to the value of improved and updated alternatives.

As a result, the FAA is effectively treating supplemental noise metrics as an asterisk to noise measurement rather than a comprehensive toolbox from which to address noise impacts. The FAA relegates supplementary metrics to an ancillary role by asserting that, "No single noise metric can cover all situations," and that while the "DNL metric is FAA's decision-making metric, other supplementary metrics can be used to support further disclosure and aid in the public understanding of community noise effects." Nowhere in the report do we find clear guidance on how and when supplemental noise metrics could be used in flight procedure design decisions or to alleviate existing noise – even as the public health impact of noise continues to spread. U.S. standards to protect human health from airplane noise are not only glaringly ineffective, they also trail Western Europe's. In its 2018 Noise Guidelines for European countries, the World Health Organization recommended using a threshold of 45 dB or lower for day and evening aircraft noise – that constitutes 20 dB less than the DNL metric employed by the FAA, which also does not disaggregate evening-levels from night. Far from trailing Western European nations, the U.S. should be demonstrating global leadership to mitigate the public health effects of aircraft noise.

When the FAA Reauthorization Act of 2018 was passed into law, Congress sought to address community airplane noise concerns by utilizing the scientific and research arms of the FAA to substantively evaluate alternative noise metrics with an eventual eye to having those metrics inform FAA decision-making. There is widespread consensus that the DNL metric remains an inadequate measure because it averages noise over a 24-hour period, thereby understating the impact of individual noise incidences. Thus, the congressional intent underpinning Sections 188 and 173 was to address the inadequacy of the DNL metric and nudge the FAA towards a more comprehensive measure. The report fails to understand that intent. Instead, we have received a delayed and highly insufficient report that does not address community impacts of noise.

Therefore, we, the undersigned Members of Congress, insist that the FAA return to the drawing board and meaning-

fully evaluate alternative metrics to the current DNL 65 average, not just dismiss or ignore them, and include the potential for the use of such metrics in the United States. Furthermore, we seek formal responses to the questions in the appended Citizens' Response Report, a Technical Report to the FAA's April 2020 Report on Alternative Noise Metrics (Reauthorization Act of 2018, Sections 173 and 188). The concerned constituents who raised these eleven questions live in communities directly affected by increased noise from NextGen implementation. We request formal responses to each question.

Without a thorough and nuanced analysis of the DNL standard and better, more accurate metrics, progress on aircraft noise will remain elusive. It is therefore imperative that the FAA meet its congressional mandate and begin the report anew while also addressing our constituents' questions. We look forward to the agency's response, including its plans to follow through on our request.

### **Caucus Members Who Signed the Letter**

The letter to the FAA Administrator was signed by the Co-chairs of the House Quiet Skies Caucus Reps. Stephen Lynch (D-MA) and Eleanor Holmes Norton (D-DC) as well as the following Caucus members: Thomas Suozzi (D-NY), Ed Case (D-HI), Ruben Gallego (D-AZ), Ro Khanna (D-CA), Alan Lowenthal (D-CA), Jimmy Panetta (D-CA), Jamie Raskin (D-MD), Harley Rouda (D-CA), Adam Schiff (D-CA), Mike Quigley (D-IL), Donald Beyer Jr (D-VA), Judy Chu (D-CA), Brian Fitzpatrick (R-PA), Pramila Jayapal (D-WA), Ted Lieu (D-CA), Joe Neguse (D-CO), Scott Peters (D-CA), Kathleen Rice (D-NY), Dutch Ruppersberger (D-CA), David Scott (D-CA), Brad Sherman (D-CA), Jackie Speier (D-CA), Adam Smith (D-WA), and Maxine Waters (D-CA).

Rep. Frederica Wilson (D-FL), who is not a member of the Caucus, also signed the letter.

### ***Boston Logan, from p. 119***

<https://faabostonworkshops.com>

The FAA will hold virtual public workshops on Oct. 23 and 28 to brief residents and answer their questions on the Draft EA and the proposed procedure. Environmental and air traffic control experts will be available to answer questions. Residents can view the schedule and register to attend at the website above.

Participants should register no later than 30 minutes before the workshops begin. The FAA also will livestream the workshops on Facebook and YouTube. Residents who are not online can access the workshops by calling 877-853-5247 or 888-788-0099.

### **Noise Grants**

## **FAA AWARDS ROCKFORD, SEA-TAC NOISE MITIGATION GRANTS**

On Sept. 24, FAA announced that the Trump administration will award \$335 million in airport safety and infrastructure grants to 80 airports in 25 states.

Two of those grants will address noise mitigation:

- Cities of Chicago/Rockford, IL, will receive a \$162,153 grant for noise mitigation measures for residences within the 65-69 DNL contour of Chicago/Rockford International Airport; and
- City of Seattle, WA, will receive a \$7,080,922 grant for noise mitigation measures for residences within the 65-69 DNL contour of Seattle-Tacoma International Airport.

### **AIP and CARES Grants**

The total grant funding includes \$300 million from the Airport Improvement Program (AIP) and \$35 million in Coronavirus Aid, Relief, and Economic Security (CARES) Act grants to equal a 100 percent federal share.

On Sept. 1, some 15 U.S. airports received a total of \$106.9 million in federal AIP grants for noise mitigation projects (32 ANR 110).

Those noise mitigation grants were part of a larger \$1.2 billion award of airport safety and infrastructure grants to 405 airports in 50 states and U.S. territories announced by U.S. Secretary of Transportation Elaine L. Chao.

The current fiscal year ends on Sept. 30, making it unlikely that additional noise mitigation grants for fiscal year 2020 will be announced.

### **NOMS**

## **LAWA ISSUES RFP FOR NOMS AT LAX, VAN NUYS AIRPORTS**

Los Angeles World Airports (LAWA) is soliciting for environmental noise management systems contractors to provide for the design, installation, and ongoing maintenance of a replacement noise and operations monitoring system (NOMS) for Los Angeles International Airport (LAX) and Van Nuys Airport (VNY).

Please note that a Pre-Proposal Conference on the Request for Proposals (RFP) will be held next Tuesday, Sept. 29 via WEBEX.

The deadline for submission of questions on the RFP is 4:00 PM on Oct. 8. Questions must be submitted in writing to: Michael Strouse [epg@lawa.org](mailto:epg@lawa.org)

The due date for proposals is 4 PM on Nov. 3.

The RFP is at: [https://www.labavn.org/index.cfm?fuseaction=contract.opportunity\\_view&recordid=40748](https://www.labavn.org/index.cfm?fuseaction=contract.opportunity_view&recordid=40748)



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### *Awards*

## SW, SKYWEST, FRONTIER AIRLINES WIN PORT OF SEATTLE FLY QUIET AWARDS

Southwest Airlines, SkyWest Airlines, and Frontier Airlines are the winners of Port of Seattle's Fly Quiet Awards, which recognize those airlines doing the best job minimizing noise impacts on local communities for operations at Seattle-Tacoma International Airport in the last calendar year.

Airlines are judged using three award criteria: the sound levels of their operations (utilizing four of the Port's noise monitors); success at flying within the noise abatement flight procedures; and adhering to the airport's ground maintenance engine run-up regulations.

- Southwest Airlines received the award for being the quietest jet airline among the five busiest airlines operationally at Sea-Tac Airport.

- SkyWest Airlines received the award for operating as the quietest regional jet airline.

- Frontier Airlines received the award for operating as the quietest jet airline with at least 1,000 annual operations.

The awards were announced on Sept. 23.

### *Training Courses*

## HMMH TO HOLD VIRTUAL AIRPORT NOISE COURSE OVER FOUR DAYS

The acoustical consulting firm HMMH has converted its two-day Airport Noise Course into a virtual course that will be delivered in eight modules over four days: Oct. 27-28 and Nov. 4-5.

The modules will cover:

- Noise Fundamentals
- Effects of Aircraft Noise on People
- Federal Aviation Noise Regulations
- Aircraft Noise Modeling
- Noise Measurements
- Airport Noise Management
- Aviation Noise Mitigation

HMMH said it is offering the virtual training at a discounted rate and will allow people to register for individual modules or the full course.

For further information, go to [www.hmmh.com](http://www.hmmh.com) and click on "Resources;" click on "Upcoming Events."

## AIRPORT NOISE REPORT

Anne H. Kohut, Publisher

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