



Meeting Announcement

Technical Working Group

Tuesday, August 29, 2023
3:30 p.m. – 5:00 p.m.
VIA HYBRID ACCESS

Foster City Council Chambers Conference Room
620 Foster City Blvd. – Foster City, CA 94404

Public may also join the webinar:

<https://smcgov.zoom.us/j/98025302813>

Or Dial-in:

US: +(669)900-6833 Webinar ID: 980 2530 2813

This meeting of the Technical Working Group (TWG) will be in person at the above mentioned address. Members of the public will be able to participate in the meeting remotely via the Zoom platform or in person at 620 Foster City Boulevard, Foster City, CA 94404. For information regarding how to participate in the meeting, either in person or remotely, please refer to instructions at the end of the agenda.

HYBRID PUBLIC PARTICIPATION:

List of attendees (using zoom sign-in credentials) will be displayed periodically throughout the meeting.

The TWG Subcommittee meeting may be accessed through the above mentioned Zoom webinar. Members of the public may also attend this meeting physically in the Foster City Council Chambers Conference Room at 620 Foster City Blvd. Foster City, CA 94404.

*Written public comments can be emailed to amontescardenas@smcgov.org, and should include specific agenda item to which you are commenting.

*Spoken public comments will also be accepted during the meeting in-person or via Zoom on Items NOT on the Agenda and for each Agenda Item at the option of the speaker.

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

ADA Requests

Individuals who require 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 packet or other writings that may be distributed at the meeting, should contact Angela Montes, as early as possible but no later than 10:00am the day before the meeting at amontescardenas@smcgov.org. Notification in advance of the meeting will enable Staff to make reasonable arrangements to ensure accessibility to this meeting, the materials related to it, and your ability to comment.

AGENDA

Call to Order

Public Comment on Items NOT on the Agenda

REGULAR AGENDA

1. Ground Based Augmentation System (GBAS) Update

Paul Hannah, SFO, Consultant, Chief Airspace and Flight Operations Engineer

2. Flight Procedures, Flight Tracks & Airport Director's Report Data

pg.4

Bert Ganoung, SFO, Noise Office Manager

Attachment: Airport Director's Report, SFO Layout, Arrivals & Departures Presentation

3. Adjourn

**Instructions for Public Comment during Videoconference Meeting

During the TWG Subcommittee hybrid meeting, members of the public may address the Membership 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 amontescardenas@smcgov.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 5:00 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:

In-person Participation:

1. If you wish to speak to the Membership, please fill out a speaker's slip located at the entrance. If you have anything you wish distributed to the Membership and included in the official record, please hand it to the Clerk who will distribute the information to the Membership and Staff.

Via Teleconference (Zoom):

1. The TWG Subcommittee meeting may be accessed through Zoom online at <https://smcgov.zoom.us/j/98025302813>. The webinar ID: 980 2530 2813. The meeting may also be accessed via telephone by dialing in +1-669-900-6833, entering webinar ID then press #. Members of the public can also attend this meeting physically in the Foster City Council Chambers Conference Room at 620 Foster City Blvd, Foster City, CA 94404.
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 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.

*Additional Information:

Technical Working Group

August 29, 2023

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For any questions or concerns regarding Zoom, including troubleshooting, privacy, or security settings, please contact Zoom directly.

Airport Director's Report, SFO Layout, Arrivals & Departures

SFO Airport/Community Roundtable
Technical Working Group Meeting
August 29, 2023

SAN FRANCISCO INTERNATIONAL

Technical Working Group
Packet Page 4

SFO

Agenda

1. Airport Director's Report Deep Dive
2. The Layout of SFO's Runways
3. Arrivals
4. Departures

The Monthly Airport Director's Report

A Deep Dive



Airport Director's Report

Presented at the August 2, 2023
Airport/Community Roundtable
Meeting

Aircraft Noise Office
June 2023

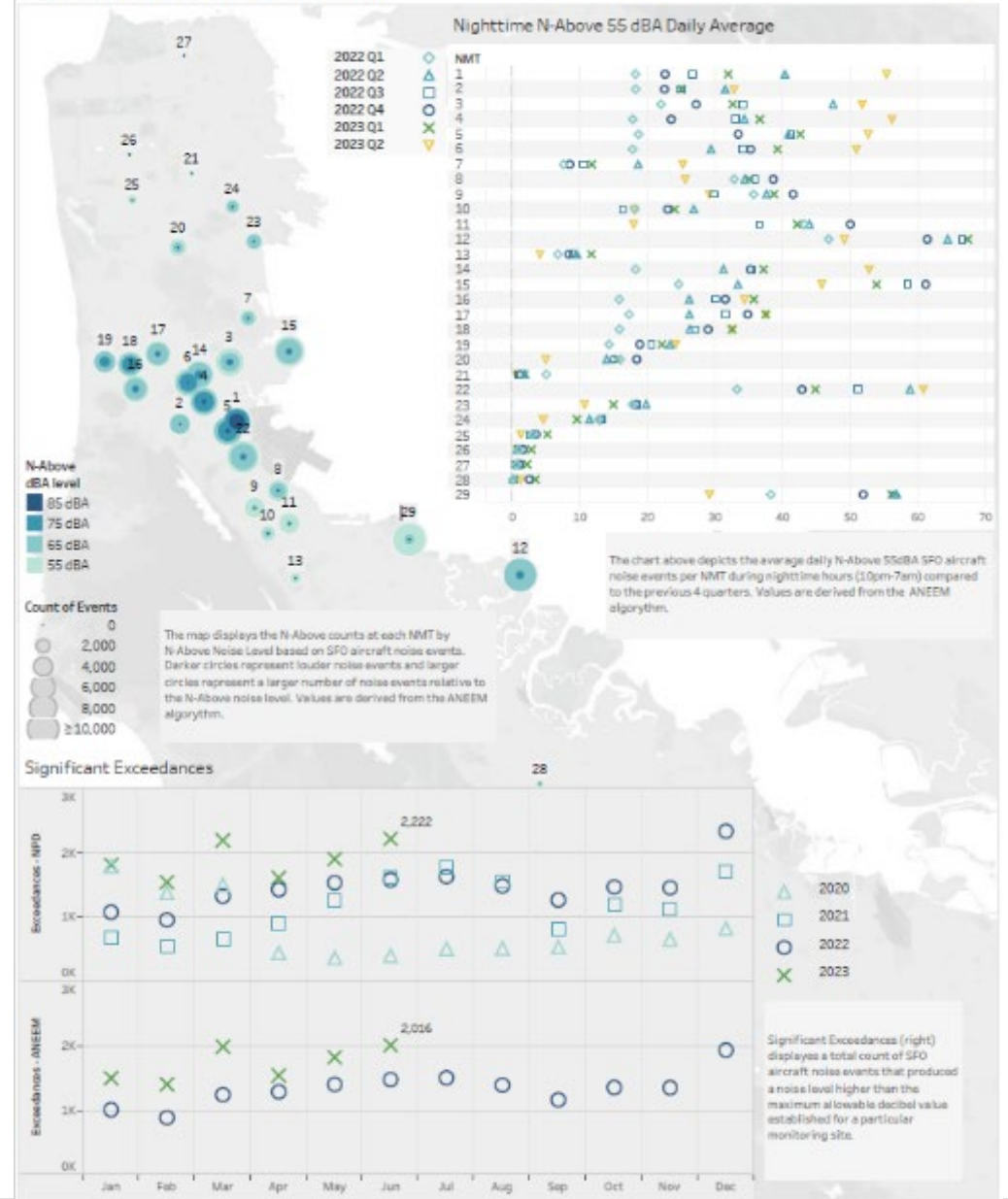


The Monthly Airport Director's Report

Aircraft Noise Levels Summary Page

Aircraft Noise Levels Summary

June 2023



The Monthly Airport Director's Report

Aircraft Noise Levels Details

Aircraft Noise Levels Details

June 2023

| NMT | City | ANOMS | | | | | | ANEEM Aircraft | | | |
|-----|---------------|------------------------|------------|-----------|------------|------------|---------------------|------------------------|------------|-----------|------------|
| | | Noise Events (AVG Day) | CNEL (dBA) | SEL (dBA) | LMax (dBA) | CNEL (dBA) | Ambient Level (dBA) | Noise Events (AVG Day) | CNEL (dBA) | SEL (dBA) | LMax (dBA) |
| 1 | San Bruno | 225 | 74 | 93 | 82 | 65 | 54 | 223 | 74 | 93 | 82 |
| 2 | San Bruno | 125 | 57 | 80 | 68 | 63 | 51 | 137 | 58 | 80 | 68 |
| 3 | SSF | 109 | 60 | 82 | 70 | 60 | 43 | 274 | 60 | 79 | 65 |
| 4 | SSF | 197 | 68 | 89 | 77 | 59 | 43 | 267 | 68 | 87 | 73 |
| 5 | San Bruno | 211 | 68 | 88 | 76 | 60 | 45 | 272 | 68 | 87 | 73 |
| 6 | SSF | 170 | 65 | 87 | 75 | 58 | 43 | 258 | 65 | 85 | 70 |
| 7 | Brisbane | 49 | 53 | 79 | 68 | 59 | 46 | 106 | 54 | 77 | 64 |
| 8 | Milbrae | 7 | 49 | 89 | 75 | 64 | 48 | 141 | 53 | 77 | 66 |
| 9 | Milbrae | 6 | 37 | 75 | 64 | 57 | 38 | 142 | 48 | 71 | 59 |
| 10 | Burlingame | 4 | 37 | 77 | 65 | 60 | 42 | 77 | 48 | 73 | 62 |
| 11 | Burlingame | 5 | 39 | 77 | 65 | 57 | 41 | 151 | 49 | 71 | 59 |
| 12 | Foster City | 393 | 63 | 82 | 71 | 58 | 42 | 455 | 63 | 81 | 69 |
| 13 | Hillsborough | 2 | 35 | 79 | 65 | 57 | 42 | 41 | 46 | 72 | 60 |
| 14 | SSF | 182 | 62 | 83 | 71 | 59 | 42 | 262 | 62 | 81 | 68 |
| 15 | SSF | 182 | 59 | 82 | 70 | 59 | 45 | 242 | 60 | 80 | 67 |
| 16 | SSF | 141 | 60 | 82 | 71 | 58 | 43 | 231 | 60 | 80 | 67 |
| 17 | SSF | 150 | 60 | 83 | 70 | 60 | 45 | 208 | 60 | 81 | 68 |
| 18 | Daly City | 147 | 64 | 87 | 75 | 59 | 45 | 208 | 64 | 85 | 71 |
| 19 | Pacific | 131 | 61 | 84 | 73 | 59 | 41 | 144 | 61 | 83 | 72 |
| 20 | Daly City | 81 | 50 | 77 | 66 | 60 | 43 | 116 | 50 | 75 | 63 |
| 21 | San Francisco | 32 | 44 | 76 | 64 | 61 | 52 | 18 | 42 | 75 | 65 |
| 22 | San Bruno | 141 | 59 | 81 | 71 | 61 | 43 | 334 | 60 | 78 | 67 |
| 23 | San Francisco | 60 | 53 | 79 | 69 | 60 | 45 | 110 | 54 | 78 | 66 |
| 24 | San Francisco | 82 | 57 | 84 | 71 | 70 | 50 | 96 | 51 | 77 | 65 |
| 25 | San Francisco | 10 | 42 | 77 | 65 | 56 | 42 | 39 | 42 | 73 | 61 |
| 26 | San Francisco | 9 | 42 | 80 | 66 | 61 | 46 | 21 | 42 | 74 | 62 |
| 27 | San Francisco | 4 | 38 | 80 | 67 | 57 | 43 | 20 | 40 | 74 | 62 |
| 28 | Redwood City | 6 | 36 | 76 | 64 | 51 | 32 | 30 | 39 | 71 | 59 |
| 29 | San Mateo | 122 | 52 | 78 | 65 | 59 | 47 | 345 | 53 | 73 | 61 |

Noise Monitor's CNEL values (above) are derived from actual measured events and are used to validate the 65dBA CNEL noise footprint. Aircraft monthly CNELs from both ANOMS and ANEEM algorithms for each monitor site are provided with daily average aircraft counts, the average Sound Exposure Level (SEL), and average Maximum Level (LMax). Noise levels from other noise sources in the community calculated by ANOMS is represented by the L90 noise value which is the noise level exceeded at the monitor for 90% of the time.

SFO N-Above NPD

SFO N-Above ANEEM

| NMT | Min-Max | | | | | | | | Min-Max | | | | | | | |
|-----|---------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--|--|
| | LMax | 55 dBA | 60 dBA | 65 dBA | 70 dBA | 75 dBA | 80 dBA | LMax | 55 dBA | 60 dBA | 65 dBA | 70 dBA | 75 dBA | 80 dBA | | |
| 1 | 66-101 | 6,034 | 6,834 | 6,834 | 6,549 | 5,695 | 4,361 | 56-101 | 6,658 | 6,652 | 6,633 | 6,387 | 5,566 | 4,237 | | |
| 2 | 61-83 | 3,805 | 3,805 | 3,805 | 3,416 | 1,121 | 44 | 53-80 | 4,039 | 3,998 | 3,480 | 1,092 | 28 | 1 | | |
| 3 | 62-90 | 3,234 | 3,234 | 2,915 | 1,263 | 506 | 123 | 53-87 | 7,289 | 6,224 | 3,346 | 1,244 | 476 | 117 | | |
| 4 | 61-95 | 5,944 | 5,944 | 5,822 | 4,961 | 3,845 | 2,041 | 53-95 | 7,843 | 7,316 | 6,049 | 4,893 | 3,757 | 1,990 | | |
| 5 | 63-92 | 6,330 | 6,330 | 6,309 | 5,628 | 3,403 | 1,395 | 53-92 | 7,945 | 7,718 | 6,952 | 5,771 | 3,819 | 1,349 | | |
| 6 | 61-91 | 5,133 | 5,133 | 5,033 | 4,308 | 3,000 | 753 | 53-91 | 7,343 | 6,762 | 5,199 | 4,179 | 2,909 | 734 | | |
| 7 | 61-80 | 1,348 | 1,348 | 1,134 | 454 | 89 | 2 | 53-80 | 2,601 | 2,140 | 1,739 | 474 | 73 | 2 | | |
| 8 | 68-90 | 181 | 181 | 181 | 155 | 72 | 29 | 53-88 | 4,106 | 3,890 | 2,120 | 594 | 153 | 43 | | |
| 9 | 59-74 | 95 | 92 | 37 | 1 | 0 | 0 | 53-78 | 3,577 | 1,611 | 306 | 37 | 3 | 0 | | |
| 10 | 60-76 | 65 | 63 | 26 | 6 | 2 | 0 | 53-76 | 3,962 | 1,414 | 489 | 61 | 3 | 0 | | |
| 11 | 60-75 | 45 | 45 | 21 | 4 | 1 | 0 | 53-66 | 3,769 | 1,517 | 357 | 54 | 5 | 1 | | |
| 12 | 63-86 | 11,968 | 11,968 | 11,901 | 7,836 | 735 | 24 | 54-82 | 13,553 | 12,963 | 11,470 | 7,466 | 654 | 32 | | |
| 13 | 59-74 | 27 | 25 | 17 | 7 | 0 | 0 | 53-73 | 950 | 479 | 125 | 5 | 0 | 0 | | |
| 14 | 61-80 | 5,489 | 5,489 | 5,288 | 3,408 | 893 | 27 | 53-83 | 7,439 | 7,079 | 5,605 | 3,366 | 871 | 23 | | |
| 15 | 61-84 | 5,504 | 5,504 | 5,227 | 2,709 | 387 | 11 | 53-84 | 8,448 | 7,808 | 5,782 | 2,737 | 391 | 5 | | |
| 16 | 61-86 | 4,262 | 4,262 | 4,104 | 2,626 | 507 | 2 | 53-80 | 6,338 | 5,527 | 4,219 | 2,552 | 495 | 0 | | |
| 17 | 60-92 | 4,552 | 4,552 | 4,355 | 2,504 | 382 | 26 | 53-90 | 5,989 | 5,653 | 4,362 | 2,301 | 312 | 9 | | |
| 18 | 64-88 | 4,402 | 4,402 | 4,383 | 3,889 | 2,431 | 587 | 53-88 | 5,942 | 5,462 | 4,608 | 3,792 | 2,367 | 575 | | |
| 19 | 65-84 | 3,954 | 3,954 | 3,954 | 3,114 | 1,113 | 53 | 54-84 | 4,320 | 4,273 | 3,997 | 2,967 | 1,062 | 50 | | |
| 20 | 59-85 | 2,200 | 2,168 | 1,103 | 253 | 77 | 9 | 53-79 | 2,650 | 2,288 | 939 | 125 | 18 | 0 | | |
| 21 | 59-79 | 418 | 405 | 146 | 10 | 1 | 0 | 60-72 | 265 | 265 | 136 | 6 | 0 | 0 | | |
| 22 | 64-84 | 4,207 | 4,207 | 4,195 | 2,569 | 399 | 22 | 53-85 | 9,712 | 8,605 | 6,349 | 2,829 | 407 | 19 | | |
| 23 | 63-83 | 1,670 | 1,670 | 1,600 | 525 | 40 | 3 | 53-79 | 2,479 | 2,256 | 1,634 | 468 | 27 | 0 | | |
| 24 | 59-83 | 2,137 | 2,134 | 1,837 | 1,188 | 520 | 36 | 54-83 | 1,964 | 1,667 | 1,022 | 404 | 85 | 6 | | |
| 25 | 58-79 | 371 | 354 | 179 | 38 | 4 | 0 | 53-75 | 732 | 473 | 159 | 16 | 0 | 0 | | |
| 26 | 60-77 | 141 | 141 | 66 | 7 | 4 | 0 | 53-76 | 261 | 220 | 70 | 5 | 1 | 0 | | |
| 27 | 60-78 | 21 | 21 | 14 | 8 | 1 | 0 | 53-78 | 122 | 86 | 25 | 8 | 1 | 0 | | |
| 28 | 59-74 | 93 | 89 | 21 | 1 | 0 | 0 | 53-68 | 421 | 157 | 15 | 0 | 0 | 0 | | |
| 29 | 59-85 | 3,941 | 3,884 | 1,349 | 361 | 90 | 8 | 53-79 | 10,322 | 6,767 | 911 | 66 | 3 | 0 | | |

Noise Monitor N-Above values (above) are derived from actual measured events and assigned to aircraft overflights using both ANOMS NPD and ANEEM algorithms. N-Above represents the count of events where the peak noise (LMax) reached above the designated dBA value. Note, the charts on this page represent only SFO aircraft-related noise events.

The Monthly Airport Director's Report

Operations

Operations

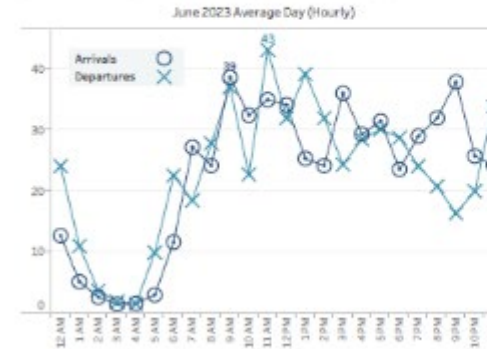
June 2023

| Monthly Ops | AVG Daily Ops | 12 Month AVG | YDY Growth |
|-------------|---------------|--------------|------------|
| 32,983 | 1,099 | 30,446 | 5% |

Major Arrival and Departure Routes (West Flow)

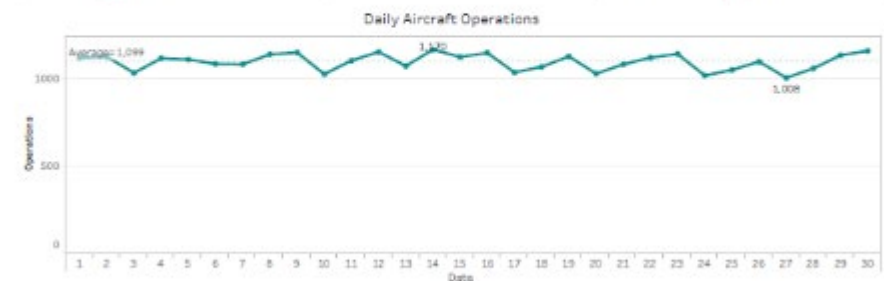
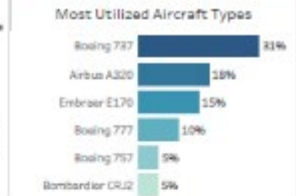
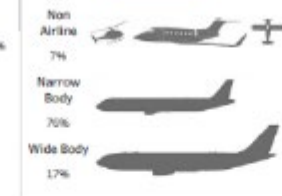
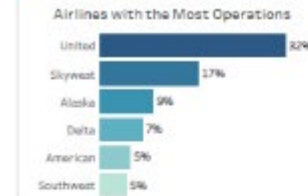


West Flow is depicted in the above image and is a predominant flow at SFO. West Flow 100%



| Top Destinations | | | Down the Bay vs Peninsula | |
|------------------|-----|---------|---------------------------|-----|
| Los Angeles | JFK | Seattle | 1.1 Down the Bay Visual | 30% |
| 6% | 4% | 4% | 1.2 BDEGA Arrival | 64% |

| Arrival Route | | Departure Route | |
|---------------|-----|-----------------|-----|
| 1. BDEGA | 33% | A. GAP | 29% |
| 2. OYAMD | 30% | B. SSTN | 23% |
| 3. SERFR | 26% | C. NITE | 8% |
| 4. FIRAT | 6% | D. TRUKN RWY 01 | 29% |
| | | D. TRUKN RWY 28 | 13% |



The Monthly Airport Director's Report

Runway Usage and Nighttime Operations

Runway Usage and Nighttime Operations

Leftmost Runway Utilization table shows percent of runway usage for arrivals and departures by runway based on all carrier operations using jet, regional jet, and turboprop aircraft. Late Night Preferential Runway Use table depicts departure runway usage between 1am - 6am for jet aircraft for the whole month (top) and during nighttime hours only (bottom). Percentages (%) are rounded to the nearest whole number.

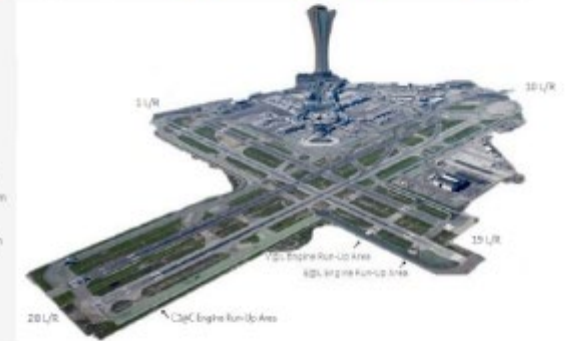


Nighttime Power Run-Ups (10pm-7am)

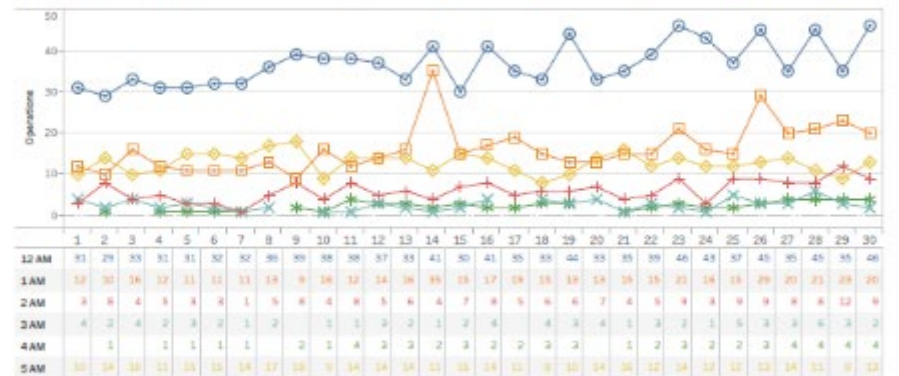
American Airlines: 4
United Airlines: 14

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

Designated Power Runup locations are 19 L/R depicted on the aerial map (right) with airlines nighttime power runup counts shown above.



Hourly Nighttime Operations



The Monthly Airport Director's Report

Noise Reports

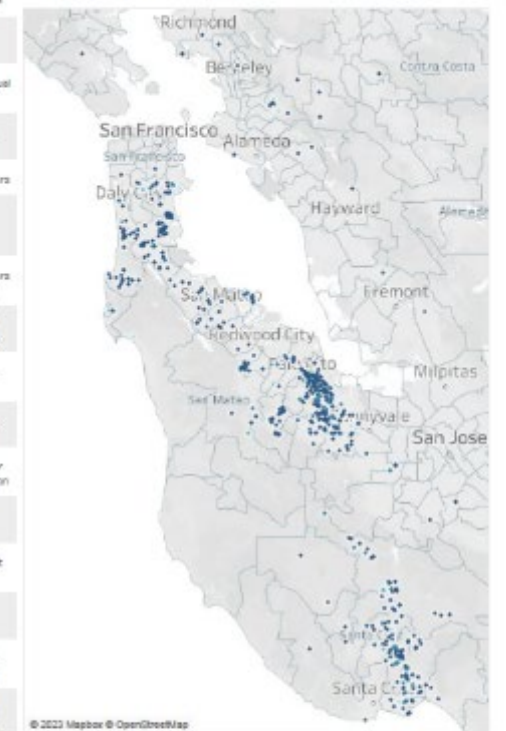
Noise Reports

| | Noise Reporters / Noise Reports | Reporters Annual AVG |
|---------------------|---------------------------------|---------------------------|
| Atherton | 2 / 258 | 535 |
| Belmont | 3 / 43 | |
| Brisbane | 20 / 706 | Reports Annual AVG |
| Burlingame | 4 / 7 | |
| Colma | 1 / 4 | New Reporters |
| Daly City | 10 / 1,897 | |
| El Granada | 1 / 1,301 | New Reporters Top City |
| Foster City | 10 / 529 | |
| Hillsborough | 2 / 76 | Furthest Report |
| Menlo Park | 11 / 893 | |
| Millbrae | 4 / 12 | Reports per SFO Operation |
| Montara | 2 / 572 | |
| Pacifica | 26 / 1,121 | Top Aircraft Types |
| Portola Valley | 22 / 4,862 | |
| Redwood City | 5 / 368 | B727 |
| San Bruno | 9 / 378 | E75 |
| San Carlos | 2 / 7 | |
| San Francisco | 16 / 2,453 | KAL218 |
| San Mateo | 12 / 438 | JKL598 |
| South San Francisco | 33 / 1,062 | AMX994 |
| Woodside | 6 / 1,814 | |
| Alameda | 1 / 1 | |
| Aptos | 2 / 6 | |
| Ben Lomond | 1 / 6 | |
| Berkeley | 2 / 923 | |
| Boulder Creek | 2 / 5 | |
| Capitola | 2 / 59 | |
| Castro Valley | 1 / 25 | |
| Cupertino | 1 / 261 | |
| East Palo Alto | 2 / 6 | |
| El Cerrito | 1 / 1 | |
| Emerald Hills | 8 / 896 | |
| Felton | 3 / 107 | |
| Fremont | 1 / 325 | |
| Lafayette | 1 / 5 | |
| Los Altos | 50 / 8,966 | |
| Los Altos Hills | 12 / 788 | |
| Los Gatos | 31 / 4,703 | |
| Mill Valley | 1 / 1 | |
| Morega | 2 / 110 | |
| Mountain View | 18 / 3,366 | |
| Oakland | 8 / 3,625 | |
| Orinda | 1 / 19 | |
| Palo Alto | 115 / 22,527 | |
| Richmond | 3 / 221 | |
| San Jose | 4 / 4 | |
| Santa Cruz | 44 / 9,207 | |
| Scotts Valley | 26 / 4,216 | |
| Soquel | 25 / 2,986 | |
| Stanford | 4 / 535 | |
| Sunnyvale | 2 / 1,167 | |
| Union City | 1 / 251 | |
| Watsonville | 1 / 71 | |
| Grand Total | 577 / 84,170 | |

Notes:
Address validation failures on ZIP code and ZIP Code look up table and LOST specified for each city values.

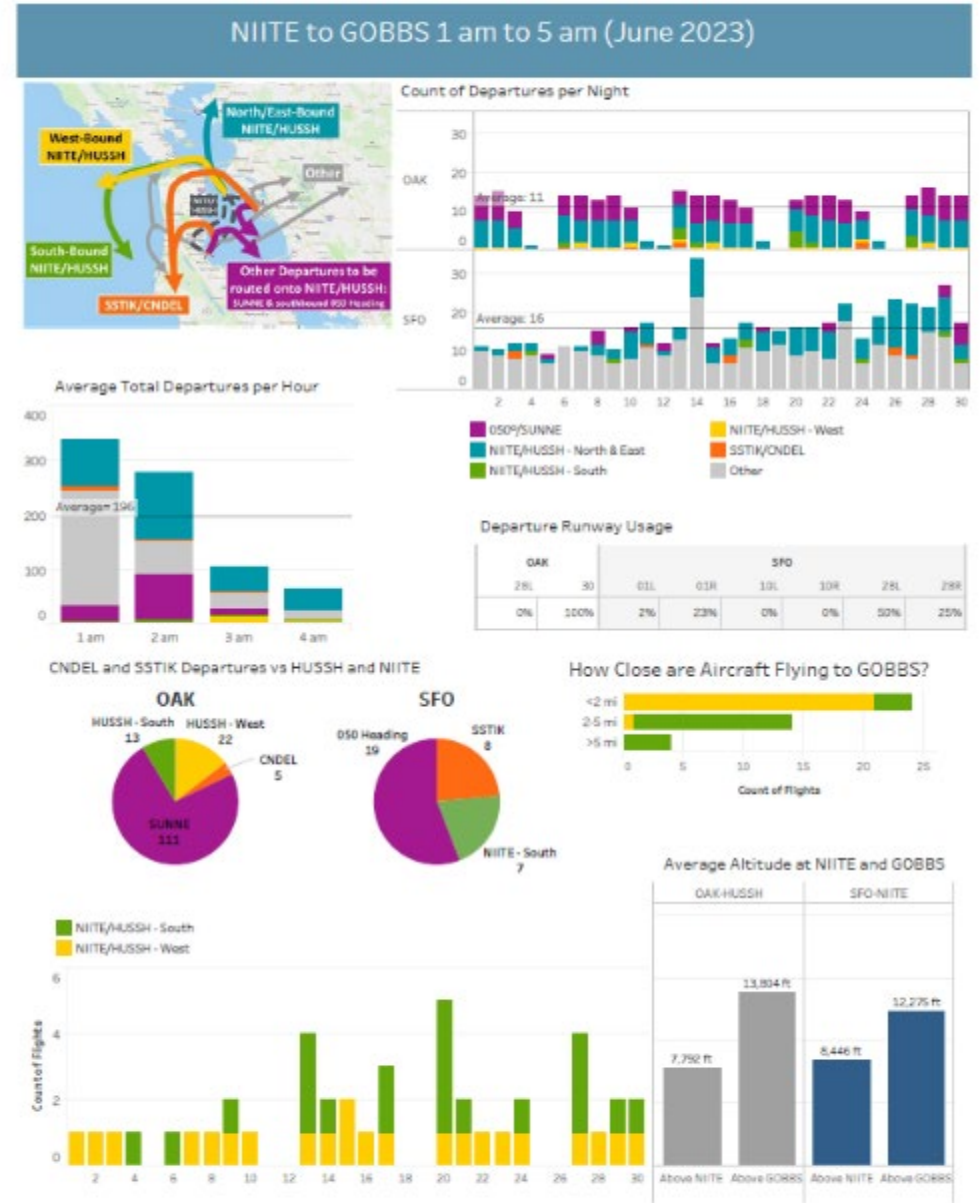


Noise Reporters Location Map



The Monthly Airport Director's Report

NIITE to GOBBS 1am to 5 am



The Layout of SFO

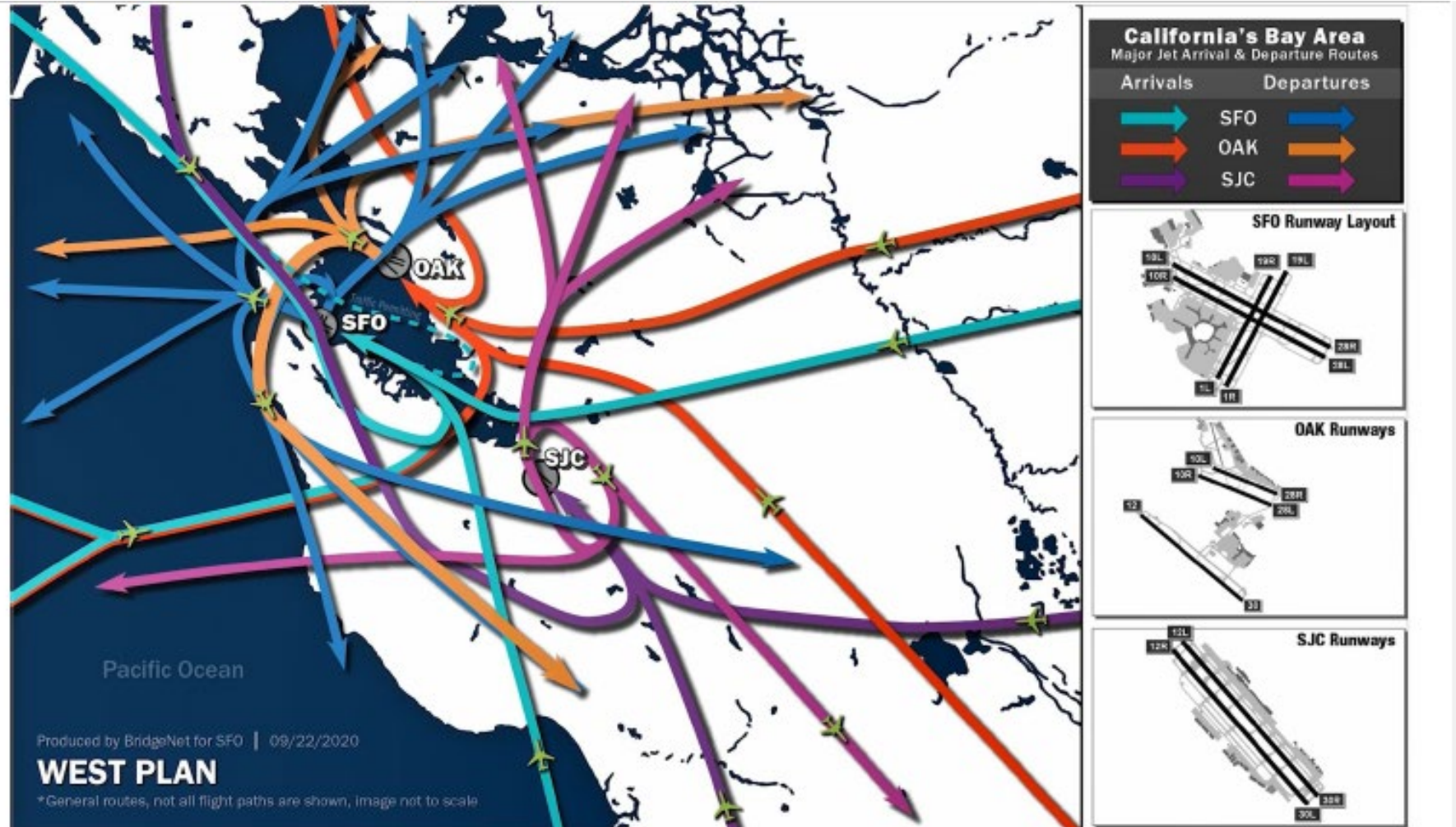
Runways:

- 01L
- 01R
- 10L
- 10R
- 19L
- 19R
- 28L
- 28R



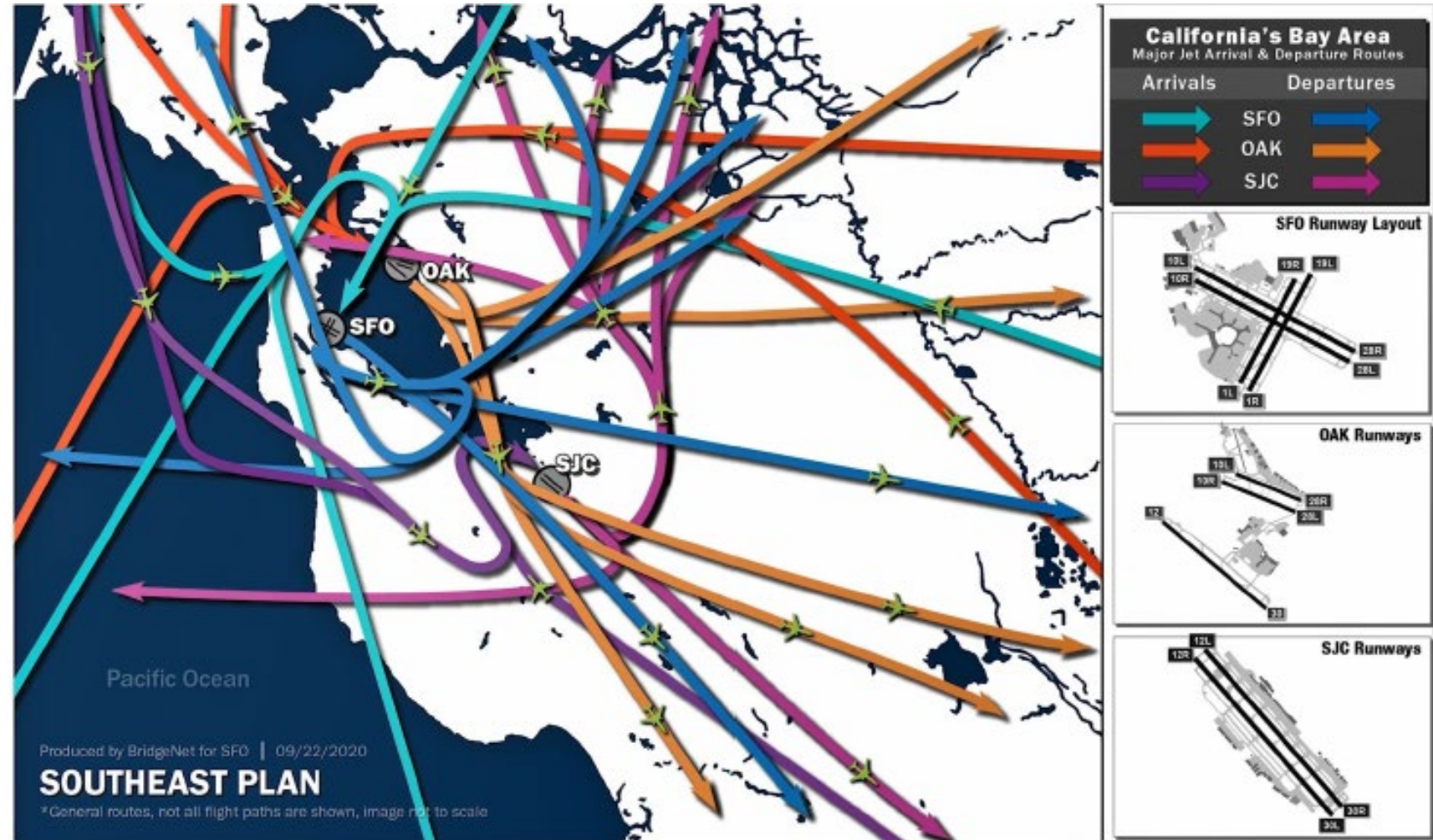
Bay Area Flight Operations

West Plan



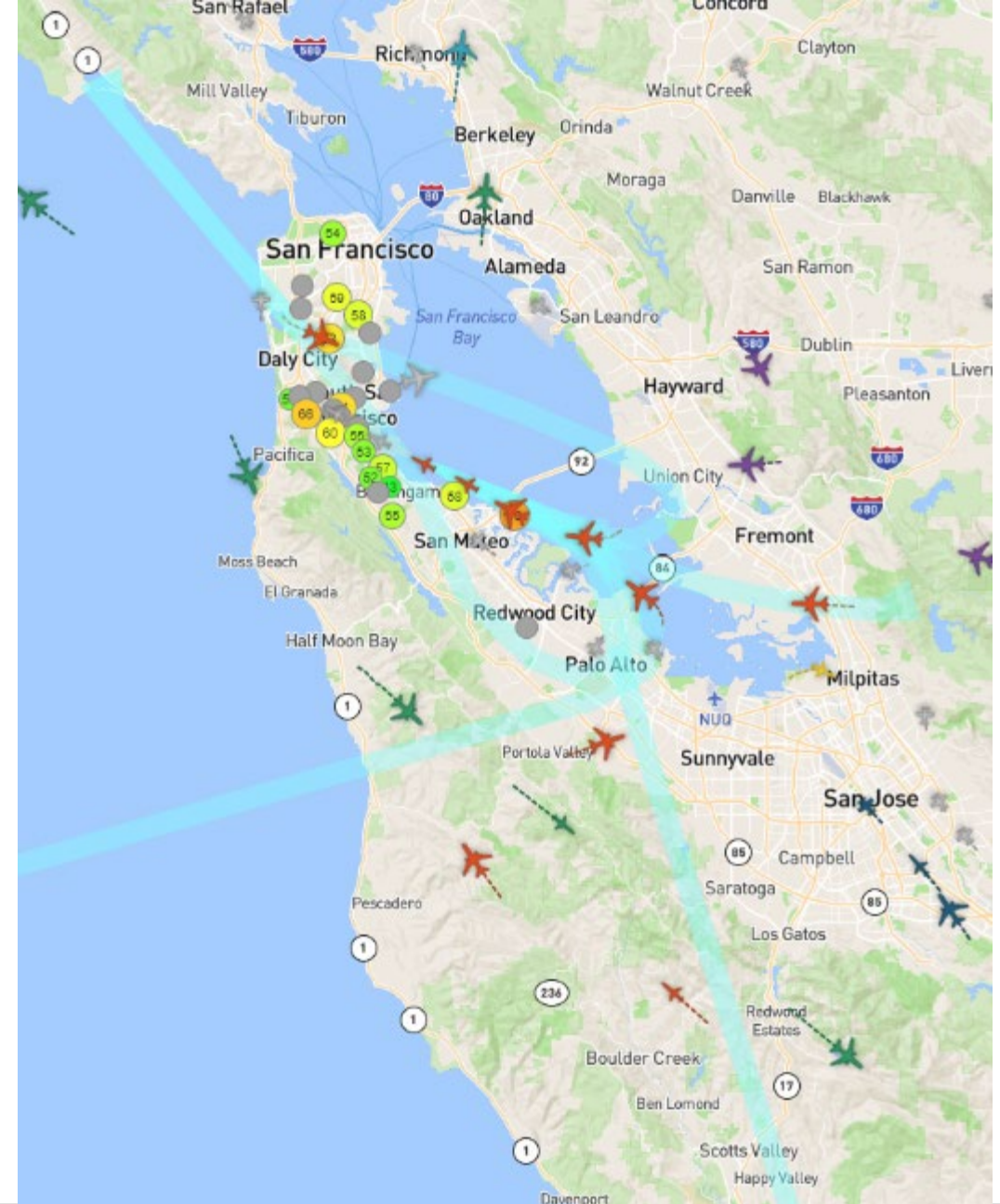
Bay Area Flight Operations

Southeast Plan



SFO Arrivals

BDEGA
Down the Bay
DYAMD
SERFR
Quiet Bridge
PIRAT



SFO Departures

SSTIK
NIITE
TRUKN
GAP
SNTNA

