



San Francisco International  
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July 7, 2023

Polly Trottenberg  
Administrator (A)  
Federal Aviation Administration  
Via: Federal eRulemaking Portal

Re: DOCKET # FAA-2023-0855 FAA Request for Comments on Review of the Civil Aviation Noise Policy

Dear FAA Administrator Trottenberg,

Thank you for the opportunity to provide these comments in response to the FAA request for Comments on the Review of the Civil Aviation Noise Policy.

Established in 1981, the San Francisco Airport/Community Roundtable, (Roundtable) represents more than 1.5 million residents in the City and County of San Francisco and San Mateo County. Roundtable members include elected officials of the Boards of Supervisors of the City and County of San Francisco and San Mateo County as well as from the City Councils of all twenty cities within San Mateo County.

The Roundtable collaborates with the San Francisco International Airport, the Federal Aviation Administration, airlines, members of Congress and other elected officials, noise-impacted communities, and the public with the purpose of developing, evaluating, and implementing policies, aircraft procedures, and mitigation actions that will reduce aircraft noise exposure in the neighborhoods and communities in San Francisco and San Mateo Counties, and to advocate for aircraft noise related legislation and programs, and to support research that reduces aircraft noise impacts. The pre-eminent goal of the SFO Airport/Community Roundtable is to improve all aircraft procedures and operations which have detrimental noise impacts to residents whether from ground operations or flight operations.

A special focus for the SFO Airport/Community Roundtable is nighttime airplane noise especially as a health issue. If aircraft noise is seen only as “annoying” to residents, it would overlook the well-documented deleterious effects of airplane noise on the health of residents. Documented in peer-reviewed scientific and medical journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults. Studies with children indicate that aircraft noise can result in an increase in children’s blood pressure and can cause negative impacts on children’s education as shown by lower levels in cognitive testing, task perseverance, long term memory, short term memory and reading achievement.

The attached Roundtable Comment Response to the FAA Request for Comments on Review of the Civil Aviation Noise Policy, Federal Register Docket # FAA-2023-0855, was considered by Roundtable Members with input from the public at a noticed regular public meeting of the SFO Airport/Community Roundtable on June 7, 2023, where Roundtable members unanimously voted to approve this document.

We appreciate the opportunity to provide input on this request. Aircraft noise impacts are critically important to the health and quality of life to our residents. We applaud the FAA for undertaking this process and we look forward to working with you create quieter skies for our residents.

Very respectfully,



Sam Hindi, Chairman  
SFO Airport/Community Roundtable  
Councilmember, Foster City



Al Royse, Vice Chairman  
SFO Airport/Community Roundtable  
Councilmember, Town of Hillsborough

Attachments:

- a. July 2023 SFO Roundtable Comments in response to Federal docket number FAA-2023-0855 (FAA Noise Policy Review)
- b. April 13, 2021 SFO Roundtable Comment to Docket No. FAA-2021-0037- Request for input on Research Activities to Inform Aircraft Noise Policy.  
(Note that references to “supplemental” noise metrics in the Roundtable response to the 2021 Docket No. FAA-2021-0037- Request would more correctly be referred to as “additional” noise metrics under the definitions in the Federal docket number FAA-2023-0855).
- c. Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties (Norcal Initiative)
- d. San Francisco International Airport Ground Based Noise Modeling Study, HMMH Report No. 309091.002, January 19, 2021 Revised January 2023 [via LINK](#)

Cc:

Members and Alternates of the SFO/Airport Community Roundtable  
FAA Regional Administrator Dr. Raquel Girvin  
Representative Nancy Pelosi  
Representative Anna Eshoo  
Representative Kevin Mullin  
Representative Jimmy Panetta  
California State Senator Scott Weiner  
California State Senator Josh Becker  
California Assemblymember Matt Haney  
California Assemblymember Philip Ting  
California Assemblymember Diane Papan  
California Assemblymember Marc Berman  
San Francisco Mayor London Breed  
San Mateo County Board of Supervisors: Dave Pine, President, Warren Slocum, Vice-President, Noelia Corzo, Ray Mueller, David Canepa  
San Francisco County Board of Supervisors: Aaron Peskin, President, Connie Chan, Matt Dorsey, Joel Engardio, Rafael Mandelman, Myrna Melgar, Dean Preston, Hillary Ronen, Ahsha Safai, Catherine Stefani, Shamann Walton

SFO Airport Commissioners: Malcolm Yeung, President; Everett A. Hewlett, Jr., Vice President; Jane Natoli, Jose Fuentes Almanza



## SFO Airport/Community Roundtable Comment Letter

### Response to Federal docket number FAA-2023-0855

Note: Gray text is used for FAA questions; black text is used for SFO Roundtable Comments.

Notice of public meeting and request for comments review key considerations of its civil aviation noise policy in the context of noise metrics and noise thresholds.

FAA requests comments focus on the issues and questions identified below to be most helpful to them; and that commenters identify the number of each question to which a response is submitted.

### 1. VEHICLE TYPE

When the FAA published the ANAP (27) in 1976, the impacts of aviation noise were related to commercial jet service at or in the immediate vicinity of airports. What types or elements of current or future air vehicle activity (e.g., unmanned aircraft systems (also known as UAS or drones), advanced air mobility, rotorcraft, subsonic fixed wing, supersonic, or commercial space) should the policy describe and disclose? How should this information be described using noise metrics? Should the FAA use this information to make decisions or for public disclosure only? Please explain your reasoning.

**Comment:** The SFO Airport/Community Roundtable wishes to respond with three distinct aircraft type categories: (1) supersonic, (2) helicopters and (3) emerging aircraft, e.g., eVTOLs.

- (1) Supersonic Aircraft: A 2020 letter from the SFO Airport/Community Roundtable to the FAA Administrator stated: “1) The FAA should follow its long-standing position of requiring new supersonic aircraft to meet the same noise certification levels as subsonic aircraft; and 2) Supersonic aircraft should meet or exceed Stage 5 requirements, which would remain consistent with subsonic aircraft...”

We continue to advocate for supersonic aircraft to comply with the noise certification standards in place for subsonic aircraft at the time of aircraft certification. Whatever devices, procedures, techniques, or other methods are used, such as a Variable Noise Reduction System (VNRS), to reduce supersonic aircraft noise to meet current supersonic noise standards, should continue to be used in flight through all altitudes in the climb until the aircraft reaches cruise flight level. Supersonic aircraft should be subject to all other regulations applicable to standard aircraft such as a 250-knot speed restriction below 10,000’MSL and other operational regulations as well as pilot certification and training.

We oppose supersonic flight over the land of the United States and the US Territorial Sea (12NM offshore) regardless of any purported “quiet sonic boom” technology.

Alternatively, if Congress, at some time in the future, agrees to allow supersonic flight over the land of the United States, with or without any purported “quiet sonic boom” technology or other design to reduce sonic boom noise, then no takeoff, landing or overflight from such a supersonic aircraft should take place over any portion of the United States land or territorial sea (12 NM offshore) of the United States from the hours of 10pm-8am local time under such supersonic flight.

- (2) Helicopters: We value the services provided by medical, law enforcement, and military helicopters and recognize the necessity of low altitude helicopter operations for special inspections, repairs, and some actual business operations. (e.g., crop dusting, photo reconnaissance). But for simple transportation of corporate executives or wealthy individuals, the FAA should consider setting a minimum altitude of 2000’ -- or higher – over any populated areas and especially at night for the enroute (not taking off or landing) phase of flight.
- (3) Emerging Aircraft: Low Altitude autonomous aircraft, whether designed to act as “air taxis” (eVTOLs) or to deliver packages should be strictly regulated in conjunction with local elected officials and the public in the areas that they traverse. Please do not cede the low altitude airspace to an industry-heavy FAA “committee” to set regulations and give away the low altitude airspace to the detriment of residents’ health and quality of life.

Without regulation to protect residents, these vehicles will fill the low-level airspace impinging on and affecting the residents in a very personal manner. Please implement a transparent, effective method to involve local entities. This might entail involving local city councils or Boards of Supervisors or expanding the role of already existing public entities dealing with land use compatibility such as California’s Airport Land Use Committees or other representative public body.

Regulations controlling package delivery should provide strict operational limits if it is to fly over any residences. Package delivery should not be permitted during the evening hours, the night hours, or the early morning hours. No package delivery and no overflight between 6pm and 8am.

## 2. OPERATIONS OF AIR VEHICLES

**Comment:** The SFO Airport/Community Roundtable was established in 1981 as a voluntary committee to address community noise impacts from aircraft operations at SFO. Therefore, operations of air vehicles remain our primary concern, particularly at night.

a. What elements of aircraft operations (e.g., en-route, takeoff, landing) should the noise metric evaluate and disclose? Should the FAA use this information to make decisions or disclose to the public noise impacts? Please explain your reasoning.

**Comment:** The SFO Airport/Community Roundtable membership is limited to the areas within the counties of San Francisco and San Mateo. These areas predominantly experience takeoff and landing procedures, so our perspective may be more limited than others that may very well include en-route operations. In addition, and due to our relatively uniqueness of predominantly one airport flow configuration (approximately 90%) in “West Plan” that results in no overflights to the areas immediately west of SFO, we also experience ground noise from aircraft operations, such APU usage, taxiing, start-of-takeoff roll on departure and thrust reverse on arrival. We strongly believe that the noise metric must

evaluate and disclose all these operations of air vehicles and this information is critical to make decisions and disclose impacts.

b. What interests or concerns do communities in the vicinity of airports have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

**Comment:** The main concerns of communities represented by the SFO Airport/Community Roundtable are related to the operations of air vehicles include night operations and non-safety vectoring for efficiency of aircraft from published procedures and/or noise abatement procedures. We appreciate the overwhelming number of controllers who vector for noise abatement at night - directing planes over the San Francisco Bay or other non-residential areas instead of over highly sensitive residential areas.

Assumptions that airplanes are quiet above certain altitudes (7000' on descent and 10,000' in climb/cruise.) are inaccurate. Our residents have clearly reported that an airplane climbing at 10,000' is not a quiet airplane – especially at night.

There are some occasions when controllers offer or approve shortcuts to airplanes – allowing the planes to leave their filed flight plan path to fly over residential areas in the middle of the night with virtually no other traffic in the sky. ATC controllers should avoid non-safety vectors providing efficiency shortcuts to aircraft over residential areas- especially at night. Perhaps the best metric is simply the number of aircraft being vectored away from established procedures at night – as it only takes one such deviation to awaken people, as we know people are awakened from unusual operations.

c. What interests or concerns do overflight communities (28) have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

**Comment:** Some of our communities continue to be excluded from mitigation measures and are concerned that 65 DNL for decision-making does not reflect the NextGen concentration of flights and the level of annoyance. The FAA should use metrics, including Number Above, Lmax and C-weighting, that reflect the communities lived experience of airplane noise impacts.

d. What interests or concerns do communities in the vicinity of commercial space transportation operations have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

**Comment:** SFO currently has no commercial space transportation operations, so the SFO Airport/Community Roundtable is unable to provide a response.

e. What interests or concerns do communities in the vicinity of UAS (drone) package delivery or other newly emerging technology operations have? How can these concerns be addressed using noise metrics? What noise metrics would address these concerns? Please explain your reasoning.

**Comment:** See response to question 1 (3).

### 3. DNL

What views or comments do you have about the FAA's core decisionmaking metric, DNL? How would these views regarding DNL be resolved if the FAA employed another noise metric (either in addition to, or to replace DNL) or if the FAA calculated DNL differently? Please explain your reasoning.

**Comment:** DNL is not an adequate metric. In 2016, the SFO Airport/Community Roundtable submitted its [Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties](#) (Norcal Initiative). This document contained a comprehensive set of recommendations to the FAA in response to the FAA implementation of the Norcal Metroplex. We said then: "In assessing impacts to the community, the SFO Airport/Community Roundtable asks that consideration be given to the limitations of using an annual average metric such as DNL to assess impact on the members of the community. Impact to the community extends far beyond an arbitrary DNL level which is widely acknowledged to be inadequate. There are other available noise metrics, including those that better capture how frequency of flights affects communities; where available, these alternate metrics should be factored into FAA decisions. We understand that the FAA is conducting a wide-ranging study of noise impacts on the communities. When the results are available, we would recommend that more representative noise metrics from this study be implemented as soon as feasible and that *existing and future flight procedures be reviewed considering the new noise data.*" (Italics in original)

So, this is not a new issue, and we would add today that living in 60 DNL or 55 DNL noise contours, especially if the area also includes loud nighttime airplanes, limits residents' amount of health-restoring sleep, increases their susceptibility to serious disease and almost certainly results in very high levels of annoyance.

Back in 1974, the Environmental Protection Agency (EPA) recognized the importance of setting a low level of 55 DNL in their March 1974 report "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", concluded that a DNL of 55 dB or lower was the appropriate noise level for "outdoors in residential areas..." That recommendation by the EPA was not accepted by the FAA.

DNL could perhaps play a role in assessing land use compatibility for communities close to the airport, but only if DNL is set lower at 55 DNL as recommended by the EPA in 1974 and additional metrics are incorporated. This lower criteria with additional metrics could be used to qualify for the Residential Sound Insulation Program (RSIP).

Even though DNL incorporates a "night penalty" of 10 dB, that is not sufficient compensation for the effects of nighttime noise. For example, it may take only one or two loud airplanes in the middle of the night causing awakenings to necessitate increased residential noise insulation even for 50 DNL and 55 DNL to protect the health of residents. Number of events above 50 dB or total number (below 18,000') of operations could be additional metrics to be factored with traditional DNL. But neither lower DNL, coupled with an operational frequency like number above or total number can account for the effects of individual loud airplanes causing awakenings.

In a recent study conducted by Boston University School of Public Health (BUSPH) and Oregon State University, (<https://ehp.niehs.nih.gov/doi/10.1289/EHP10959>) it was reported that that people who were exposed to airplane noise at levels as low as 45 dB were more likely to sleep less than 7 hours per night.

Other studies have correlated awakenings with Sound Exposure Level (SEL). We have seen that SEL is

about 7 to 12 dB higher than the maximum sound level for an average aircraft arrival or departure noise event. Assuming the 45 dB was a maximum sound level reported above, a corresponding SEL may be 55 dB for the onset of the interior SEL for awakenings. Assuming residential structures with open windows reduce the noise by 10-15 dB, an outside SEL of 65 to 70 dB would result in an interior Lmax of 45 dB. Assuming residential structures with windows closed reduce the noise by 20-25 dB, an outside SEL of 75 to 80 dB would result in an interior Lmax of 45 dB. Lastly, assuming residential structures with windows closed and sound insulation treatment applied reduce noise by 25-30 dB, an outside SEL of 85 to 90 dB would result in an interior Lmax of 45 dB. Therefore, SEL may be an appropriate single-event noise metric to use as the onset of awakenings from aircraft operations at night depending on the level of treatment applied to the structure; and be used to determine the acoustical treatments required to provide for an adequate sleeping environment for residential bedrooms. However, understanding that SEL and Lmax are closely tied with the noise events caused by aircraft operations, either metric could be used.

#### 4. AVERAGING

DNL provides a cumulative description of the noise events expected to occur over the course of an entire year averaged into a representative day, described as an Average Annual Day (AAD).

a. Do you believe an AAD is an appropriate way to describe noise impacts? Please explain why or why not.

**Comment:** Averaging metrics do not generally provide the kind of tailored data to account for variations in aircraft noise that typically occur in our communities. However, averaging may serve some purposes when combined with aggressive time carve-outs and used with additional metrics including Sound Exposure Level (SEL).

b. If not, what alternative averaging schemes to AAD should be considered and why? What information would the use of an alternative averaging scheme capture that AAD does not?

**Comment:** The FAA currently allows schools to base their DNL calculations for noise insulation qualification based on their hours of operation instead of 24/7/365. That, too, should be available for airports which have seasonal variations. For example, winter snow destinations with heavy winter operations but few aircraft operations for the rest of the year, should be allowed to have their DNL calculation based only on their heavy season because that is when those residents are most affected.

Similarly, residents should be allowed to calculate the DNL for their homes based on the days of the year that they are subjected to the flights that typically comprise their DNL. For example, at San Francisco International Airport, (SFO), the typical traffic flow is based on northwest winds with Runways 28L/R straight out departure aircraft being the dominant factor in determining the 65 DNL contour for residences underneath. However, for about 10% of days in the year -- when SFO uses other runway configurations, including reverse flow, little, if any, significant airplane noise is produced in the 65 DNL contour, but those days are still added into the DNL 365 days calculation, thus "diluting" the impact of the noise that occurs 90% of the time. In this case, it would be expected that if the DNL calculation deleted days when Runways 28L/R were not used for departures, then it would be likely that the 65 DNL contour would expand into the adjacent 60 DNL contour levels, thus qualifying these homes for the Residential Sound Insulation Program (RSIP).

#### 5. Decision-making Noise Metrics



The FAA currently uses DNL as its primary decisionmaking metric for actions subject to NEPA and airport noise compatibility planning studies prepared pursuant to 14 CFR part 150.

a. Should different noise metrics be used in different circumstances for decisionmaking?

**Comment:** DNL could be used for land compatibility and NEPA studies for changes near to the airport, although it needs to find alternatives to the 24/7/365 constraint and needs to be augmented with additional metrics from operations metrics as well as single event data. Based on the effects of changes to flight procedures resulting from the FAA's implementation of the NorCal Metroplex, it is clear that something other than DNL, specifically 1.5 dB change within the 65 DNL is needed to assess potential impacts, particularly those resulting in the concentration of flight paths.

b. If the answer to Question 5.a. is "yes," please identify: the metric, the information it provides that DNL does not, and explain when and how it should be employed by the FAA in its system (e.g., should the FAA use a noise metric other than DNL to evaluate noise exposure in quiet settings, such as national parks, national wildlife and waterfowl refuges, etc.)? Should this metric be used when the FAA is making decisions that affect noise in these settings? Should this metric be used alone or in combination with another metric?

**Comment:** Metrics used to make decisions on new and modified flight procedures should be based on operations data over a specified area using number of events above 50 dB or total number of flights overhead (below 18,000') along with additional metrics reporting individual aircraft using Sound Exposure Level (SEL). The SEL data is required to identify individual loud aircraft during the nighttime that could startle sleeping residents and lead to awakenings.

c. If the metric should be used in combination with another metric, please describe how they should be used together for decisionmaking.

**Comment:** See responses to questions 5.a. and 5.b.

d. If the answer to Question 5.a is "no," should DNL remain the core decisionmaking metric or should another metric be substituted in all circumstances?

**Comment:** See responses to questions 5.a. and 5.b.

e. How would the use of the metrics that you recommend support better agency decisionmaking? Please explain and illustrate with specific examples how the use of the recommended metric(s) would benefit agency decisionmaking.

**Comment:** The significance threshold for "non-airport" NEPA studies (e.g., flight procedure changes) could be based on a percentage increase from existing overhead operations - perhaps as low as 10% for daytime/evening hours, but a far lower increase would only be required for nighttime hours. And even an increase of one noisy flight at night might be sufficient to trigger further action under NEPA to assess the impact on residents' health. The number of events above does not adequately address the increased frequency of flights. Flights occurring every 2 to 3 minutes are far more annoying than those occurring every 20 to 30 minutes. Contrary, time above does not show the noise events that are noisy and yet may lead to awakenings and other health issues.

## 6. COMMUNICATION

a. Please identify whether and how the FAA can improve communication regarding changes in noise exposure (e.g., what information FAA communicates, where and with whom FAA communicates, what information methods FAA uses to communicate and the venues at which FAA shares this information). Please explain your reasoning.

**Comment:** Transparency is needed early in the process. Currently, the FAA's PBN flight procedure process incorporates public engagement very late in the process, long after the flight procedure design is largely finalized. While it is challenging to engage the public earlier when it might seem that there is little to show them, this early consultation is exactly what is needed. Beginning public engagement after a CATEX and after the flight procedure is almost fully developed defeats the purpose of public engagement and leaves the FAA open to criticism that the process is a "rubber stamp".

When a new or significantly modified flight procedure is proposed, allow the opportunity for an aviation Roundtable technical consultant and a qualified technical consultant for the procedure proponent to be a part of the PBN Full Working Group (or similar) rather than just including FAA-controlled technical staff.

The Federal Register and notices to Members of Congress are a start to effectively connecting with residents who have noise issues. However, other ways should be added in such as communication to recognized aviation Roundtables, known (or easily ascertainable) community aviation noise groups and advocates (there are lists of aviation noise groups on various large group websites), information to Boards of Supervisors (or similar) with requests to forward to appropriate entities could also work. In addition, social platforms may also be another communication alternative.

Whether by design or evolved use, the FAA Instrument Flight Procedures Information (IFP) Gateway does not provide any pertinent information to the public whatsoever. At the very least, the FAA could categorize proposed new/modified procedures as "Procedural Change" vs. "Administrative". "Procedural Change" could indicate a new flight path, a significantly lower altitude or other changes that could increase noise to residents. "Administrative" could describe a flight procedure that would propose a minor waypoint name change, a non-significant altitude revision or a typo.

b. Should the FAA consider revisions to its policy on the use of supplemental noise metrics in the FAA's NEPA procedures? Please explain how this policy should be modified to improve FAA communication of noise changes when the FAA is making decisions that affect noise. Please explain your reasoning.

**Comment:** See responses to questions 5.a. and 5.b

c. What information about the change in noise resulting from civil aviation operations (e.g., UAS or drones, helicopters, fixed wing aircraft, rockets/commercial space transportation vehicles, and new entrant technologies) should the noise metric communicate to the public? Please explain your reasoning.

**Comment:** See responses to questions 5.a. and 5.b.

d. Please explain how the public will benefit if the FAA implements your proposal in response to Questions 6.a and 6.b.

**Comment:** See response to question 6.a.

## 7. NEPA and Land Use Threshold Established Using DNL or for Another Cumulative Noise Metric

The FAA has several noise thresholds that are informed by a dose-response curve (Schultz Curve (29)), which historically provided a useful method for representing the community response to aircraft noise. Two of the noise thresholds informed by the Schultz Curve are the FAA's significant noise impact threshold for actions being reviewed under the National Environmental Policy Act and the land use compatibility standards established in 14 CFR part 150, Appendix A. Both of these rely on the cumulative noise metric DNL and are referred to collectively in this question and questions 8–10 as “the FAA noise thresholds.” On January 11, 2021, the FAA published the results of the Neighborhood Environmental Survey, (30) a nationally representative dataset on community annoyance in response to aircraft noise. The Neighborhood Environmental Survey results show higher percentage of people who self-identify as “highly annoyed” by aircraft noise across all DNL levels studied in comparison to the Schultz Curve.

a. How should the FAA consider this information (i.e., the Schultz Curve and Neighborhood Environmental Survey findings) when deciding whether to retain or modify the FAA noise 31) established using the DNL metric or to establish new FAA noise thresholds using other cumulative noise metrics? Please explain your reasoning.

**Comment:** Many of the FAA’s previous assumptions are based on outdated inaccurate premises. Now that the NES data shows the high level of annoyance at lower levels of noise and that residents far outside the 65 DNL contours are highly annoyed, the FAA noise policy should be completely revised. However, if you do continue to use this DNL metric, we would urge a level below 55 DNL and the use of additional metrics such as Number Above. For additional information on this, see the attached April 13, 2021 SFO Roundtable Comment to Docket No. FAA-2021-0037- Request for input on Research Activities to Inform Aircraft Noise Policy.

Use of the DNL metric as a standard for NEPA, specifically in reference to changes in the airspace beyond the airport boundaries, is wholly inadequate. Please note our comments regarding DNL in section 3 of this document. Use of NEPA Categorical Exclusions (CATEX) should be severely limited for new or significantly modified flight procedures. Use of CATEX for flight procedures operating 24/7 or in the nighttime should be viewed with intense scrutiny. All assumptions made leading to CATEX determination must be reviewed and revised considering the data provided in the Neighborhood Environmental Survey and as well as a groundswell of scientists reporting serious health impacts from airplane noise in scientific journals.

Clearly, the following FAA NEPA guidance (FAA Order JO 7400.2P) on situations where no further environmental review is required beyond the initial environmental review (IER) has been written in a way that almost entirely avoids environmental scrutiny of flight path changes. No further review is required if the proposed flight path change:

- (a) Is above 18,000 ft AGL
- (b) Is above 7,000 ft AGL for arrivals and/or 10,000 ft AGL for departures and/or overflights
- (c) Does not result in 1.5 dB increase for 65 DNL and higher for procedures between 10,000 ft and 18,000 ft AGL

With residents’ reporting high level of annoyance at lower levels of noise, as noted in the NES, the above

items (b) and (c) should be assertively modified.

b. Should the FAA consider other or additional information when deciding whether to retain or modify the FAA noise thresholds that were established using the DNL metric or to establish new FAA noise thresholds using other cumulative noise metrics? Please describe the reason for the recommendation and identify the data, information, or evidence that supports the recommendation.

**Comment:** If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impact studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

c. How should research findings on auditory or non-auditory effects (e.g., speech interference, sleep disturbance, cardiovascular health effects) of noise exposure caused by civil aircraft and vehicles be considered by the FAA when it decides whether to retain or modify the FAA noise thresholds (32) that were established using the DNL metric? How should the FAA consider this same research when deciding whether to establish new FAA noise thresholds using other cumulative noise metrics? Please explain your response.

**Comment:** If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impact studies as well as including metrics such low frequency noise metrics and Number Above. See also the attached SFO Airport/Community Roundtable April 13, 2021 SFO Roundtable Comment to Docket No. FAA-2021-0037- Request for input on Research Activities to Inform Aircraft Noise Policy.

d. In examining whether to change its metrics and thresholds for noise, the FAA needs reliable information to support any changes. One type of information that the FAA can rely on is epidemiological evidence. This means the study (scientific, systematic, and data-driven) of the distribution (frequency, pattern) and determinants (causes, risk factors) of health-related states and events (not just diseases) in specified populations (neighborhood, school, city, state, country, global). What amount of epidemiological evidence is sufficient to provide the FAA with a sound basis for establishing or modifying the FAA noise thresholds (33) either using the DNL metric or another cumulative noise metric? Please explain your response.

**Comment:** If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impacts studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

e. Should the FAA consider using factors other than annoyance to establish FAA noise thresholds (34) using the DNL metric or other cumulative noise metrics? What revisions to existing FAA noise thresholds or new noise thresholds do you recommend be established and why? Please explain your response.

**Comment:** If you continue to use DNL, use a low level of DNL based on current and ongoing studies and health impacts studies as well as including metrics such as low frequency noise metrics and Number Above. Also see responses to questions 5.a. and 5.b.

## 8. FAA Noise Thresholds Using Single-Event or Operational Metrics

As the FAA learned from the results of the NES, people are bothered by individual aircraft noise events,

but their sense of annoyance increases with the number of those noise events. Should the FAA consider employing new FAA noise thresholds (35) using single-event or operational metrics? If the answer is “yes,” which metrics should be used to establish the FAA noise thresholds? What should be the relevant noise exposure level for the new noise thresholds you propose? Please explain your reasoning. If the answer is “no,” please explain your reasoning.

**Comment:** Please see our comments in other sections of this document which can be applicable here as well and specifically see responses to questions 5.a. and 5.b

## 9. FAA Noise Thresholds for Low-Frequency Event

Should the FAA establish noise thresholds (36) for low-frequency events, such as those associated with the launch and reentry of commercial space transportation vehicles authorized by the FAA Office of Commercial Space Transportation? If the answer is “yes,” which metrics should be used to establish the noise thresholds? What should be the relevant noise exposure level for the new noise thresholds you propose? Please explain your reasoning. If the answer is “no,” please explain your reasoning.

**Comment:** Low-frequency noise thresholds should not be limited to launch and re-entry of commercial space transportation as suggested in question nine. Due to our relative uniqueness of having predominantly one flow airport configuration (approximately 90% in “West Plan”) that results in no overflights to the areas immediately west of SFO, we experience ground noise from aircraft operations, such APU usage, taxiing, start-of-takeoff roll on departure and thrust reverse on arrival. These communities have long reported that “A-weighted” noise metrics are insufficient to describe this noise which relentlessly impacts residents’ sleep and health. In an August 24, 2021, letter to the FAA Administrator, the SFO Airport/Community Roundtable recommended that the FAA use an appropriate noise metric and C-weighting in the analysis of ground-based noise.

We continue to believe that C-weighted noise best describes the “backblast” noise from aircraft taking off and it should be addressed and remediated. We would advocate that the FAA perform an evaluation to determine if C-weighted or A-weighted noise data better represents people’s annoyance and sleep disturbances under the conditions described above. If there is a linear difference, consider an offset applied to DNL to account for this annoyance. If there is no linear difference, determine the circumstances where C-weighted noise should be factored into the land use compatibility and/or eligibility for sound insulation to mitigate such noise.

To better understand how ground based noise propagates through the communities adjacent to SFO from aircraft departures, the SFO Roundtable, through its Ground-Based Noise Subcommittee, produced the 2021 San Francisco International Airport Ground Based Noise Modeling Study available at the SFO Roundtable website: [Ground Based Noise Modeling Study](#).

Currently, the Roundtable, through its Ground-Based Noise Subcommittee, is conducting a limited study using portable noise monitors to determine whether low-frequency noise is a larger contributor to noise at the start of take-off vs. noise on the departure path. We will provide the results of the study to the FAA.

## 10. Miscellaneous

What other issues or topics should the FAA consider in this review regarding noise metrics, the method of calculating them, the establishment of noise thresholds, (37) or FAA's method of communicating the change in noise exposure? Please explain your response.

**Comment:** Over the past decades, laws, regulations, processes, and procedures have largely limited the Roundtable's ability to make significant improvements in reducing airplane noise to residents. The most troubling of these is the lack of recognition and focus by some that nighttime aircraft noise is a serious health concern to residents. In 2016, the SFO Airport/Community Roundtable submitted its [Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties](#) (Norcal Initiative) containing a comprehensive set of recommendations to the FAA in response to the FAA implementation of the Norcal Metroplex. We said then: "AIRCRAFT NOISE AS A HEALTH ISSUE: If aircraft noise is only seen as "annoying" to residents, it would overlook the well-documented detrimental effects of noise on the health of the members of communities underlying flight paths. Documented in peer-reviewed scientific journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults. Impacts to children show that aircraft noise can result in an increase in children's blood pressure and can cause negative impacts on children's education as shown by lower levels in cognitive testing, task perseverance, long term memory, short term memory and reading achievement."

Today, many peer-reviewed scientific journals recognize the deleterious effects of nighttime noise and recognize that sleep disturbances can lead to serious health concerns. The very real and very serious health concerns to residents, as well as the economic costs from nighttime airplane noise exposure necessitates bold action on the part of the FAA and the airline industry.

- No longer can we accept that adding a few extra flight track miles is a valid reason for awakening residents multiple times in the night.
- No longer can we accept that avoiding a few minutes of flight delay is a valid reason for awakening residents multiple times in the night.
- No longer can we ignore options that might help prevent awakening residents multiple times in the night.

One of those options to consider would be to allow Airport Directors at least some discretion to grant incentives to airlines willing to request and implement nighttime noise abatement procedures. Another option to consider is modifying 14CFR161--NOTICE AND APPROVAL OF AIRPORT NOISE AND ACCESS RESTRICTIONS to allow Airport Directors to have increased discretion to insist on reasonable nighttime noise abatement procedures.

This might take the form of modifying the criteria or standards for granting a Part 161 Airport request or modifying the Part 161 process which is controlled by the FAA at every step including the final approval or disapproval. Since it's 1991 implementation, not one airport has successfully restricted operations of aircraft certified as Stage 3 or beyond through the Part 161 process. It would be easy to say that some of these restrictions are due to Congressional legislation, but if the FAA were to request, if required, modifications to these regulations from Congress, it is very possible that such requests would find support.

Another option would be to modify the mission of the FAA. In 2016 as part of the SFO Community Roundtable's recommendations as part of the FAA Norcal Initiative process following Metroplex

implementation, the SFO Community Roundtable suggested that the FAA Mission Statement be updated to include noise as a priority. The FAA Mission Statement currently reads:

***“Our continuing mission is to provide the safest, most efficient aerospace system in the world.”***

The Roundtable commented then that “We support action to amend the FAA Mission Statement to include “noise, health, and other impacts to the communities” along with efficiency, as a secondary consideration after safety. While nothing can be more important than safety in our skies, it is the opinion of this Roundtable that noise and adverse health impacts to the communities should be included to be at least as important as efficiency.” Considering recent scientific studies, the current Roundtable believes that while the FAA mission should always place safety first and foremost, it is past time to add aircraft noise impact to residents on an equal basis with efficiency.

## 11. Literature Review

In this review, the FAA will examine the body of scientific and economic literature to understand how aviation noise correlates with annoyance as well as environmental, economic, and health impacts. The FAA also will evaluate whether any of these impacts are statistically significant and the metrics that may be best suited to disclose these impacts. A bibliography of this body of research is available for review in the Background Materials tab in the Docket and as Appendix 1 to the FAA framing paper entitled, The Foundational Elements of the Federal Aviation Administration Civil Aircraft Noise Policy: The Noise Measurement System, its Component Noise Metrics, and Noise Thresholds. This framing paper is available at: <https://www.faa.gov/noisepolicyreview/NPR-framing>. Please identify any studies or data regarding civil aviation noise not already identified by the FAA in the bibliography that you believe the FAA should evaluate. Please explain the relevance and significance of the study or evidence and how it should inform FAA decisions regarding the policy.

**Comment:** The SFO Airport/Community Roundtable identifies the following literature references for FAA review and evaluation:

- (1) Reported in the Environmental Health Perspective (EHP) and funded through the Federal Aviation Administration (FAA), this study, “Associations between Aircraft Noise Exposure and Self-Reported Sleep Duration and Quality in the United States-Based Prospective Nurses’ Health Study Cohort,” concluded, in part, that:

“The increasing recognition of the importance of adequate sleep for maintaining health and optimal daytime functioning has spurred research aimed at identifying modifiable factors for improving sleep duration and quality. Environmental risk factors—including noise pollution—represent targets for improving sleep health that been underinvestigated...”

“We found evidence for adverse effects on sleep at exposures as low as 45 DNL dB(A), the lowest modeled noise level, and evidence further showed an exposure–response relationship between aircraft noise and short sleep duration...”

*Reference: EHP: Environmental Health Perspective, Association between Aircraft Noise Exposure and Self-Reported Sleep Duration and Quality in the United States-Based Prospective Nurses’ Health Study Cohort, April 2023*

(2) This publication reported that:

“Aircraft noise is one, if not the most, detrimental environmental effect of aviation. It can cause community annoyance, disrupt sleep, adversely affect academic performance of children, and could increase the risk of cardiovascular disease of people...”

*Reference: Aviation Noise Impacts: State of the Science, Journal Noise and Health, Mar-Apr 2017*

(3) Although European in focus, this 321-page OPEN ACCESS book includes extensive discussion of nighttime aviation noise impacts to human health (pp.173-218). In general, the book provides step by step explanation of airport noise and related annoyance, discusses the future of aviation noise, and explains how to engage communities when trying to manage aviation noise.

*Reference: Aviation Noise Impact Management: Technologies, Regulations, and Societal Well-being in Europe, Editors: Laurent Leylekian, Alexandra Covrig, Alena Maximova, 2020.*

(4) The SFO Airport/Community [Roundtable](#) responded to the FAA through a report recommending more than 40 actions to decrease aircraft noise to residents.

*Reference: [SFO Roundtable Response to the FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties \(FAA Norcal Initiative\) November 17, 2016](#)*

(5) The SFO Airport/Community Roundtable commissioned a study on low frequency aircraft noise.

*Reference: [2021/2023 San Francisco International Airport Ground Based Noise Modeling Study](#), HMMH Report No. 309091.002*





April 13, 2021

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

Re: Docket No. FAA-2021-0037 - FAA Aircraft Noise Policy and Research Efforts: Request for Input on Research Activities to Inform Aircraft Noise Policy

Dear Mr. Dickson:

The San Francisco International Airport/Community Roundtable (SFORT) has been in existence for 40 years. The SFORT represents 23 elected or appointed officials from governing bodies in the counties of San Francisco, and San Mateo, representing a population of 1,648,122<sup>1</sup>. The overall purpose of the SFORT is to foster and enhance cooperative relationships to develop, evaluate, and implement reasonable and feasible policies, procedures, and mitigation actions that will reduce the impacts of aircraft and airport noise in neighborhoods and communities in San Francisco, and San Mateo Counties.

At its regular Membership Meeting of February 3, 2021, the SFORT received a presentation from Harris Miller Miller & Hanson (HMMH) President Mary Ellen Eagan, on the FAA Neighborhood Environmental Survey (NES). On March 1, 2021, the SFORT Legislative Subcommittee met to discuss the FAA Aircraft Noise Policy and Research Efforts (Docket No. FAA-2021-0037) where the National Organization to Insure a Sound Controlled Environment (N.O.I.S.E.) provided their Board recommendations, and HMMH gave an overview of the findings and conclusions on FAA's key research, tools, and technology programs. SFORT Members heard the presentations, and community feedback at each meeting.

This letter represents SFORT's consensus recommendations to the FAA on how resources should be directed to address community aircraft noise exposure.

SFORT believes that swift concrete action is necessary to modify the noise measurement methodology, report and share information with communities, and increase noise mitigation measures in communities. The NES results provide evidence to support what has been known anecdotally for years: Even though NextGen increased the efficiency of flight operations, the intensification of flights particularly over residential communities has resulted in cumulative noise disturbance that significantly reduces the quality of life for our residents that cannot be measured properly by the definition of significance at 65 dB CNEL/DNL.

The following are our recommend actions on key research, tools, and technology programs:

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<sup>1</sup> U.S. Census, Population Estimate, July 1, 2019.

1. Effects of Aircraft Noise on Individuals and Communities

- a. Develop an Environmental Justice metric that recognizes disadvantaged communities and measures the impact of aviation noise specifically on those communities.
- b. Prioritize all SFO flights, over water instead of over land, for departures and arrivals.
- c. Establish new policy to employ the NES, rather than the FICON/Schultz Curve, to better represent aircraft noise impacts to communities.
- d. Reinstigate the FAA Office of Environment and Energy to address community noise impacts.
- e. Disallow use of the FICON/Schultz curve in Part 150 and NEPA environmental reviews. Add air quality emissions, health impacts (including psychological impact) from flights over land. Add low frequency noise, such as ground-based noise.
- f. Modify the NEPA thresholds of significance based on the findings of the NES and replacement of the CNEL/DNL metric.
- g. Eliminate NEPA Categorical Exemptions for new and updated RNAV procedures such as those for GBAS (SFO specific). Require all go through a full environmental analysis and review process.

2. Noise Modeling, Noise Metrics, and Environmental Data Visualization

- a. Replace agency-wide use of the CNEL/DNL metric with a supplemental metric such as NA (Number Above) number of events above a certain decibel level such as in NEPA, Part 150, and AIP/PFC Funding of Noise Mitigation.
- b. Consider duration within the agency approved metric(s). Use a supplemental metric that factors in duration, such as TA (Time Above).
- c. Break out noise metric standards in terms of frequency (such as low and high frequencies).
- d. Include actual real-time noise metrics, not a 24-hour average noise metric, to include the NIITE HUSSH and GBAS (SFO specific) concentrated air traffic corridors, leaf blower, freeway, and the airplane when determining community impact.
- e. Overlay on mapping, disadvantaged communities using new Environmental Justice metric recognizing communities already over-burdened by pollution, socioeconomic, and health impacts. FAA should prioritize expenditure in these communities to reduce noise pollution and recognize the relationship between NextGen or GBAS (SFO specific) narrowing and focusing of flight paths.
- f. Recommend transparent dialogue and sharing of data and information between the FAA and its partners such as the ASCENT Program to partner with Roundtables on pilot programs to test noise metrics, noise measurement in varied topography, and inclusion and testing of ground-based noise and mitigation.
- g. Implement the environmental visualization tool to help communicate aircraft noise data to the public.
- h. Update the Aviation Environmental Design Tool (AEDT) to account for aircraft vibration, and tones of multi-rotorcraft.
- i. Vet, thru Roundtables, the use of updated noise screening tool to simplify modeling processes, to facilitate expedited review of proposed Federal actions where significant noise impacts are not expected (where it could qualify for a categorical exclusion).
- j. Provide funding to Airports to accommodate sound insulation treatments on properties that opted out previously or are outside the 65 CNEL/DNL contour but underneath a flight path, or where noise reduction treatments have worn out and no longer effective. Promote the installation and

use of HEPA air filters as part of sound insulation treatment packages to purify air from aircraft emissions; ultra-fine particles are of utmost concern.

- k. Develop Noise and Operations Monitoring System (NOMS) standards and consider the use of noise monitoring data to calibrate noise modeled contours.
  - l. Establish a framework for tracking and including ground-based-noise, using the SFORT funded ground-based noise study, completed on January 19, 2021, as a baseline study.
3. Reduction, Abatement and Mitigation of Aviation Noise
- a. Include broader definition of noise in Continuous Lower Energy, Emissions, and Noise (CLEEN) Program, to include all types of noise such as vibration.
  - b. Develop Advanced Air Mobility (AAM) operational standards and procedures and noise abatement procedures for multi-rotor and vertical aircraft. Consider municipal-level standards for uses such as air taxis, or local good delivery and interface and transition to municipal multi-model transportation hubs.
  - c. The likelihood of home-based package deliveries trending upward is likely to continue. In planning for increases in cargo (whether as part of larger aircraft types or within bellies of smaller commercial aircraft), include nighttime curfews for airports in urban areas.
4. Miscellaneous: Range of Factors / Additional Categories
- a. Clarify the role of the Community Engagement Officers (CEO) to actively engage in a transparent, complete, and forthright collaboration, sharing, and pilot testing programs with Roundtables.
  - b. Address the Final Recommendations of the Select Committee on South Bay Arrivals dated November 17, 2016; and the SFORT recommendations.
  - c. FAA should provide guidance to airports on the removal and relocation of Noise Monitoring Systems (NMT) as part of an existing noise monitoring system.
  - d. Complete the Certification of Supersonic Airplanes SFORT recommendations (FAA-2020-0316) dated June 8, 2020.
  - e. Voluntarily implement provisions of proposed legislation on community noise reduction, such as Rep. Jackie Speier REST Act, to enable airports to impose noise deterrence penalties and impose access restrictions between 10:00p-7:00a, or SNORE Act to noise insulate 200+ homes annually; or FAIR Act to add to the FAA Mission noise and health impacts, along with safety; and LEAVE Act to create standards and remedies related to ground-based noise.
  - f. Partner with regional governments to discuss electric and vertical aircraft (such as air taxis) on municipal buildings and provide standards, suggested zoning, and best practices for interface with multi-model transportation hubs and emergency services.

Please consider the SFORT a partner to the FAA. We are interested in discussing in more detail the challenges in the San Francisco Bay Area. Thank you.

Sincerely,



Ricardo Ortiz, City of Burlingame, Vice Mayor  
Chairman of the Roundtable



November 17, 2016

The Honorable Anna Eshoo  
United States House of Representatives  
698 Emerson St.  
Palo Alto, CA 94301

The Honorable Sam Farr  
United States House of Representatives  
701 Ocean St, Room 318C  
Santa Cruz, CA 95060

The Honorable Jackie Speier  
United States House of Representatives  
155 Bovet Road, Suite 780  
San Mateo, CA 94402

Re: *FAA Initiative Phase 1*, SFO Airport/Community Roundtable Response

Dear Members Eshoo, Farr, and Speier:

The San Francisco International Airport/Community Roundtable (Roundtable) would like to gratefully thank each of you for forcefully advocating on behalf of our residents. You listened to our concerns, wrote letters to and held meetings with FAA Administrator Huerta. You invited FAA Regional Administrator Glen Martin to community leadership meetings, and you have sought the Roundtable's and Select Committee's recommendations to the FAA Initiative.

Through your leadership, the FAA has heard about the deleterious noise, emissions and health issues caused by aircraft operations and the FAA's NextGen airspace changes in the NorCal Metroplex, which has negatively affected over a million people in our area. And now, the FAA is listening.

Thank you for the opportunity to open a dialogue with the FAA Regional Administrator, the Western Service Center and the Sierra Pacific District Air Traffic Operations to collaboratively look for ways to decrease the noise and health impacts on our residents and improve the quality of their lives.

In reviewing the FAA Initiative, there are approximately 29 Adjustments that are under the purview of the Roundtable; of this total, 13 were deemed by the FAA as "Feasible" while 16 were deemed by the FAA as "Not Feasible." Those deemed Not Feasible may likely be remedied by operational changes and pilot and controller outreach, rather than a protracted environmental process to change a procedure. These recommendations include both short-term and long-term solutions. We implore the FAA to implement the short-term solutions as soon as possible to provide relief for our citizens while working on the longer-term solutions.

This letter will detail our response to each of the Adjustments.

None of these proposed recommendations can be successful without a concentrated collaboration among stakeholders, including you, as our Members of Congress, as well as the FAA Regional Administrator, the FAA Western Service Center and our local NORCAL TRACON professionals as part of the Sierra Pacific District Air Traffic Operations team. In addition, we strive to include other stakeholders such as San Francisco International Airport, airlines, other elected officials, the Select Committee on South Bay Arrivals, as well as the citizens we represent in our communities. As this process continues, the Roundtable requests that the FAA conducts ongoing compliance monitoring to ensure procedures are being followed, as well as a public outreach process.

The Roundtable has worked extensively with its members and has held many public meetings over the past nine months to fully understand the issues, so that the attached recommendations responding to the FAA Initiative have been driven by our local residents, and thus garner the support of our communities. The attached recommendations have been unanimously approved by the members of the Roundtable and are organized as follows:

Attachment A: Overarching Concerns

Attachment B: Executive Working Outline

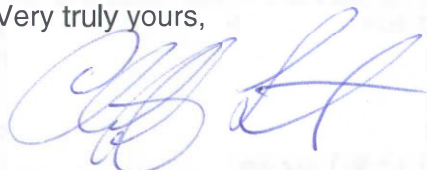
Attachment C: Technical Discussion Packages

Attachment D: SFO Roundtable's Response to the FAA Initiative Feasibility Report

Attachment E: Letters and Resolutions of Support from Roundtable Member Cities

Our SFO Airport/Community Roundtable looks forward to working with you and the FAA to collaboratively develop solutions that reduce noise impacts in our communities, while maintaining safety in our skies.

Very truly yours,



Cliff Lentz, Chair  
SFO Airport/Community Roundtable



Elizabeth Lewis, Vice Chair  
SFO Airport/Community Roundtable

cc:

Glen Martin, Regional Administrator

Clark Desing, Director, Western Service Center

Ron Fincher, Director, Air Traffic Operations Western Service Area South

Tony DiBernardo, Terminal District Manager, Sierra Pacific District Air Traffic Operations

Don Kirby, Manager, NORCAL TRACON

Tracey Johnson, Manager, Quality Control Group, Mission Services

Mindy Wright, Manager, South Airspace & Procedures Team

Members, SFO Airport/Community Roundtable

Members, Select Committee on South Bay Arrivals



## ATTACHMENT A

### OVERARCHING CONCERNS

### SFO AIRPORT/COMMUNITY ROUNDTABLE RESPONSE TO FAA INITIATIVE

**LEGISLATION and AGENCY ACTIONS:** We appreciate your participation in the Congressional Quiet Skies Caucus and urge that legislation be enacted to protect the health and well-being of residents in communities which are affected by flight operations. We also urge legislation to require that affected communities be recognized as stakeholders at each and every stage of FAA action which could potentially affect their communities. We support repeal or amendment of the Airport Noise and Capacity Act of 1990 and other existing law, in order to allow airports to impose non-discriminatory nighttime curfews, capacity limitations at saturated airports, and other noise abatement improvements.

**AIRCRAFT NOISE AS A HEALTH ISSUE:** If aircraft noise is only seen as “annoying” to residents, it would overlook the well-documented detrimental effects of noise on the health of the members of communities underlying flight paths. Documented in peer-reviewed scientific journals, noise adversely and seriously affects blood pressure, cardiovascular and other health issues in adults. Impacts to children show that aircraft noise can result in an increase in children’s blood pressure and can cause negative impacts on children’s education as shown by lower levels in cognitive testing, task perseverance, long term memory, short term memory and reading achievement.

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

**FAA MISSION STATEMENT:** The FAA Mission Statement currently reads – “Our Mission: *Our continuing mission is to provide the safest, most efficient aerospace system in the world.*” We support action to amend the FAA Mission Statement to include “noise, health and other impacts to the communities” *along with efficiency*, as a secondary consideration after safety. While nothing can be more important than safety in our skies, it is the opinion of this Roundtable that ***noise and adverse health impacts to the communities should be included at least as equally important considerations as efficiency.***

## Attachment A: Overarching Concerns

Response to the *FAA Initiative to Address Noise Concerns*

November 17, 2016

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

FAA procedure design criteria must be modified to consider not just safety and efficiency for the airspace users, but also consider community impact and to solicit community input using local land conditions, population density, other sensitive noise areas, success of historical routes and other community-provided factors. This is why we strongly support designing and flying procedures such as the CNDEL, SSTIK, and BDEGA to utilize the Bay and ocean as efficiently as possible. Ameliorative efforts, such as track dispersal, avoidance of narrow flight path corridors over heavily populated areas and increased in-trail spacing to reduce vectoring, should be incorporated in designing procedures and in taking all other actions which might potentially affect communities.

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

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

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

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

## Attachment A: Overarching Concerns

Response to the *FAA Initiative to Address Noise Concerns*

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take action now to reduce the need for unnecessary vectoring over communities – which adds completely unnecessary emissions, noise and health impacts to those communities.

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

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

The **Nighttime Procedures Plan** encompasses the Roundtable nighttime recommendations in the following Executive Outline and Attachment documents. While ideally, these special nighttime hours' procedures would be used from 10:00 pm to 7:00 am, that is not generally possible. The ability to fully use the **Nighttime Procedures Plan** is based on fewer flights and additional available airspace. This happens when the SJC curfew begins at 11:30 pm, along with fewer SFO and OAK flights which generally occurs between midnight and 6:00 am. For those bad weather days, we can expect that flight delays earlier in the day, will likely delay the start time of the **Nighttime Procedures Plan**. We urge the FAA to use selected procedures from the **Nighttime Procedures Plan** during those hours when the entire plan may not be operationally feasible.

Members of the Roundtable have already met with FAA representatives to discuss and refine these nighttime recommendations. These ongoing FAA/SFO Roundtable meetings will expand to include invited representatives from SFO Airport as well as representatives from the airlines who use the Bay Area airspace with goals to timely implement these recommendations as well as collaborate on additional nighttime improvements.

### Details of the **Nighttime Procedures Plan** include:

- Implementation of a south transition to the NIITE/HUSSH departure – to use in place of the SFO SSTIK and OAK CNDEL southbound departures (already deemed feasible by the FAA).
- Goal of 100% of flights to the north, east, south and west flying the NIITE/HUSSH departures to the final fix on the departure (NIITE for north and east; GOBBS for west and the to-be-determined final fix on south transition) -- not turning early.
- Filing of alternate flight routes for arrivals from the west (Oceanic) and south (SERFR) which would keep flights primarily over water with the goal of 100% of arrivals from the north and west using the east downwind of the BDEGA (not the west downwind), weather dependent.
- Use of a single stream of traffic to approach and land on Runway 28R (when landing to the west).
- Use of offset approaches to Runway 28R only (when weather permits and when landing to the west).
- Use of opposite direction takeoffs from Runways 10L/R (when weather and traffic permit) instead of the Runways 28 straight out departures.
- Use of Runways 28 L/R Shoreline/TRUKN departure instead of the Runways 28 L/R straight out departures.



## **Attachment A: Overarching Concerns**

Response to the *FAA Initiative to Address Noise Concerns*

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- Use of already-developed controller vectoring to keep departures over the Bay (SFO 050 heading and the OAK heading for southbound flights in place of southbound SSTIK and CNDEL).
- Use of controller developed vectoring, techniques and perhaps alternate flight plan filing to mirror the NIITE south transition until it has been implemented (in place of southbound SSTIK and CNDEL).
- In circumstances where a flight must fly over land (especially during the time when new procedures are being implemented), controllers are requested to use best efforts to keep aircraft as high as possible over land – and perhaps utilize a slightly longer path over the Bay to dissipate this additional altitude.
- Modification of the BDEGA East Downwind to reinstate the FINSH waypoint and determine if an RNAV/RNP curved approach procedure can be designed for BDEGA East to Runway 28R.
- Determine if Runways 10L/R can be re-authorized to use the NIITE departure up the Bay.
- Determine if a 3,000' altitude cap on Runways 28 L/R straight-out departures can be lifted (avoiding level flight on the climb-out) and using the GAP 7 departure with no altitude restriction during the redesign of GNNRR.



## ATTACHMENT B

### EXECUTIVE WORKING OUTLINE SFO AIRPORT/COMMUNITY ROUNDTABLE RESPONSE TO FAA INITIATIVE

**ST** = Short Term Task

**LT** = Long Term Task

**LIGHT GRAY SHADING** = FAA NORCAL TRACON

**DARK GRAY SHADING** = FAA Western Service Group

**LEAD** = Task lead agency:

**SFO** = SFO Airport Manager

**RT** = SFO Airport/Community Roundtable

**NCT** = FAA NORCAL TRACON

**WSC** = FAA Western Service Group

**OKC** = Flight Procedures Oklahoma City

#		LEAD	LT/ ST	ARRIVALS	
1	<b>BDEGA +</b> Other arrivals from north Woodside + Mid-Peninsula	WSC	ST	Safety and traffic flow permitting, go back to historical use of the BDEGA East downwind prior to May 2010.	The RT understands that at certain times of the day, continuous traffic flow on the DYMND arrival causes reduced opportunities to use the BDEGA East downwind. However, when traffic allows (or when a slot can be created), use of the BDEGA east downwind significantly decreases noise to the entire mid-Peninsula.
2	<b>BDEGA +</b> Other arrivals from north Woodside+ Mid-Peninsula	WSC	ST	The FAA has provided, via the Select Committee on South Bay Arrivals, data on BDEGA West and East legs, showing the decline in the use of the East leg, with it being used only 28% of the time in May 2016 versus 42% in May 2010, down from a high in May 2005 of 57%.	Residents would benefit by understanding the limitations on the use of the BDEGA East downwind and the causes underlying what appears to be a significant decrease over the past few years in the utilization of the BDEGA East downwind. Consideration should be given to making the BDEGA procedure a RNP arrival down the bay, creating a curved arrival path over the bay.
3	<b>BDEGA</b> Other arrivals from north Woodside+ Mid-Peninsula	WSC	LT	If safety is not a factor, request the reinstatement of the FNISH transition in order to facilitate use of the BDEGA East downwind.	Ideally (even if only in visual conditions), it would be beneficial to create a "connection" between FNISH waypoint and a turn on to 28R for the FMS Bridge Visual, Quiet Bridge Visual or similar approach to 28R. This would most benefit non-local pilots who may not be familiar with SFO BDEGA East Downwind procedures.
4	<b>BDEGA</b> Other arrivals from north Woodside+ Mid-Peninsula	WSC	ST	The RT requests the FAA provide data on Golden Gate/BDEGA lateral track locations pre-NextGen and post-NextGen and if new procedures can use headings, not tracks, in procedure design.	The Golden Gate arrival directed a 140° <b>heading</b> from SFO. In the BDEGA, this was changed to a 140° concentrated <b>TRACK</b> from BRIXX waypoint located on SFO. Consider other factors which may also account for aircraft following a different track after NextGen.
5	<b>BDEGA</b> Woodside+ Mid-Peninsula	WSC	LT	Determine if the BDEGA West downwind can be flown at a higher altitude or over compatible land uses.	It has been suggested that the BDEGA West downwind be flown at a higher altitude notwithstanding the constraints of the BRIXX at 12,000 feet.

**Attachment B: Executive Working Outline**

Response to the *FAA Initiative to Address Noise Concerns*

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6	<b>BDEGA Arrival</b>  IN-TRAIL SPACING	NCT	ST	The SFO RT requests that the FAA study whether an increase in in-trail spacing on the BDEGA arrival will result in the decrease in vectoring over the Peninsula	Efficiency to the industry must be balanced with noise and health impacts to the communities as well as increased emissions to the environment.
7	<b>BDEGA</b> Other arrivals from north Woodside+ Mid-Peninsula	NCT	ST	<b>BDEGA NIGHTTIME HOURS</b> During the nighttime hours, every effort should be made for all arrivals from the north to be assigned the historical BDEGA East Downwind.	If delay vectors are needed to create a single stream to 28R or to incorporate BDEGA East downwind into the flow, early adjustments to DYMND arrivals might have the least noise impact on residents. Administrative Draft
8	<b>SERFR Arrival</b>  IN-TRAIL SPACING	NCT	ST	The SFO RT recommends that the FAA increase the in-trail spacing of aircraft on the SERFR arrival, flying the procedure as charted, which will decrease the need for vectoring. For this arrival, the SFO RT also recommends increasing the altitude of the arrivals on the assigned routes as well as the vector traffic.	The FAA reports that more than 50% of planes on the SERFR Arrival are vectored off their path; some vectors begin as early as Monterey. This vectoring results in many additional flight miles, causing significant increases in noise and emissions. While the RT understands that this recommendation for increased in-trail spacing may result in ground delays at the departure cities, it will be at least partially offset by the reduced amount of airborne flight delays. This planned vectoring merely masks the problem; efficiency must be balanced with noise and health impacts to the communities as well as increased emissions to the environment.
9	<b>SERFR + BSR</b> Woodside+ Mid-Peninsula	WSC	ST	<b>FLIGHT FROM THE SOUTH NIGHTTIME HOURS</b> During nighttime hours only, determine if arrivals from the south (such as on the SERFR/BSR) could instead file a route which would terminate to the east of the Bay for an approach to Runway 28R.	<b>During the nighttime hours only</b> , the concept is to allow aircraft to file a routing similar to an LAX-OAK route (such as KLAX-CASTA6-GMN-RGOOD-EMOZOH3 to MYNEE), then from MYNEE (or other) direct ARCHI or ANETE, then conduct a noise-friendlier approach such as the FMS Bridge Visual 28R, Quiet Bridge Visual 28R, RNAV (RNP) Y 28R or if required, ILS 28R.
10	<b>BDEGA West Downwind</b> <b>OCEANIC</b> <b>SERFR/BSR</b> <b>ARRIVALS</b>	WSC	LT	<b>NIGHTTIME HOURS APPLICABLE TO SFO AND OAK FLIGHTS</b> During nighttime hours only (ideally 10 pm – 7 am), whenever aircraft fly over residential areas, the RT requests that every effort be made to keep aircraft at a higher altitude than typical daytime altitudes.  Consider using extra flight distance over the Bay to 28R to dissipate extra altitude.	<i>During nighttime hours only</i> , the goal is for BDEGA arrivals to be assigned the EAST Downwind, the goal for OCEANIC arrivals is for the flights to file for an arrival substantially over water (ex. BDEGA East Downwind) and the goal for SERFR/BSR is to file for an arrival to the east of the Bay.  However, in the interim, and at any time flight over residential areas is absolutely required, higher altitudes over land might be dissipated by flight over the Bay to a 28R “noise-friendlier” approach. The amount of higher altitude available over land is related to the amount of miles flown to intercept the 28R approach.

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Response to the *FAA Initiative to Address Noise Concerns*

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11	<b>DYAMD Arrival</b>  IN-TRAIL SPACING	NCT	ST	The SFO RT recommends that the FAA increase the in-trail spacing of aircraft on the DYAMD arrival to allow additional opportunities for aircraft to use the BDEGA East arrival, Down the Bay. By routing more flights over the BDEGA East downwind, vectoring noise and emissions over the Peninsula (from SERFR, Oceanic and BDEGA West) will be decreased.	The DYAMD arrival is used by aircraft arriving from the east. This arrival feeds into SFO 28R approaches. The level of vectoring on DYAMD is low and is generally done over unpopulated areas. By increasing the spacing of aircraft on the DYAMD – either for 24 hours of the day or during the hours in which traffic is estimated to exceed a pre-determined level—there should be additional opportunities for aircraft on the BDEGA to be assigned the BDEGA East downwind over the Bay, rather than the BDEGA West downwind over the noise-sensitive Peninsula and will decrease noise and emissions over the Peninsula. Efficiency to the industry must be balanced with noise and health impacts to the communities as well as increased emissions to the environment.
12	<b>RWY 28 APPROACHES</b> Foster City	NCT	ST	Regardless of the time of day, whenever there is a single stream operation to only one runway, aircraft should approach and land only on Runway 28R.	This request is in accordance with NCT SOPs.
13	<b>RWY 28 APPROACHES</b> Foster City	NCT	ST	When landing single stream to 28R or landing both 28L/28R in VMC, aircraft landing 28R should be assigned noise “friendlier” approaches such as FMS Bridge Visual 28R, Quiet Bridge Visual, or RNAV (RNP) Y 28R.	This request is substantially in accordance with the NCT SOPs.
14	<b>RWY 28 APPROACHES</b> Foster City	NCT	ST	<b>NIGHTTIME HOURS</b> ATC should make every effort to coordinate traffic arrivals to <b>create a single stream of traffic</b> to land only on Runway 28R.	Depending on weather conditions, aircraft would be expected to fly the FMS Bridge Visual 28R, the Quiet Bridge Visual, the RNAV (RNP) Runway 28R, (or if conditions require) the ILS 28R or other approach to Runway.
15	<b>RWY 28 APPROACHES</b> Foster City	OKC *	LT	Determine the feasibility of creating dual offset (VMC or IMC) RNAV, RNAV (RNP) or other type of approach to Runway 28L <b>and</b> to Runway 28R.	This requested concept would create two offset paths with both the 28L path and the 28R path remaining well clear of Foster City and other bayside communities until past the San Mateo Bridge when aircraft would then line up with each runway for landing.
16	<b>MENLO + VICINITY</b>	NCT	ST	In VMC, aircraft should cross the vicinity around the MENLO waypoint and at or above 5,000 feet MSL. Aircraft within the <b>vicinity</b> of MENLO should use the 5,000’ altitude when able.	The SFO Aircraft Noise Abatement Office and Northern California TRACON have an agreement that states when able, aircraft will cross the MENLO intersection VMC at 5,000’ MSL and IMC at 4,000’ MSL.

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17	<b>MENLO +Vicinity</b>  SFO TIPP TOE VISUAL 28L	FAA	LT	Create a Visual Approach for Runway 28L with a MENLO crossing altitude at or above 5,000' MSL.	While the TIPP TOE Visual Runway 28L is still a published approach procedure, the RT understands that it is little, if at all, used since NextGen. The SFO RT requests that the FAA replace the TIPP TOE Visual with a comparable NextGen Visual Arrival to 28L <b>preserving the TIPP TOE Visual requirement for crossing MENLO at or above 5000'.</b>
<b>DEPARTURES</b>					
18	<b>NITTE HUSSH</b>	WSC	ST	This procedure should be flown as <b>charted</b> including flying over the NIITE flyover waypoint as specified in the departure procedure.	When the NIITE Southbound transition is published, flights should fly the complete published departure unless a 050° heading is available as an alternative; this does not advocate increasing Rwy 01 flights at night.
19	<b>NIITE HUSSH</b>	WSC	LT	<b>NIITE/HUSSH SOUTH NIGHTTIME HOURS APPLICABLE TO SFO AND OAK FLIGHTS</b> Create a south transition for the NIITE that keeps traffic over the Bay and ocean until a high altitude is attained.  The south transition to the NIITE should also include applicability of that transition to the OAK HUSSH.	Since the NIITE has a transition for westbound traffic to GOBBS waypoint, a southbound transition could follow a track using the PYE 135° radial (which defines GOBBS) from GOBBS to the PORTE waypoint. Some have suggested that the track should remain offshore for some distance beyond PORTE which could be done using a portion of the OFFSHORE ONE departure, with aircraft flying to the WAMMY waypoint in the ocean, or a similarly-located waypoint that is offshore, well clear of the coastline.
20	<b>NIITE</b>	NCT	ST	<b>NIITE/HUSSH SOUTH NIGHTTIME HOURS APPLICABLE TO SFO AND OAK FLIGHTS</b> While awaiting the development of a NIITE/HUSSH SOUTH transitions, NCT is requested to use the NIITE DP track to GOBBS and then vectors from GOBBS southbound (keeping offshore) at least until PORTE or further south.	This vector request mirrors the long-standing NCT SOP which reflects, in essence, a vector to GOBBS <i>"Between the hours of 2200 and 0700 local (Sundays to 0800), vector oceanic departures over the Bay to pass over the north end of the Golden Gate Bridge."</i>  This request would simply add on a request for a vector from the vicinity of GOBBS southbound to remain well clear of the coastline.
21	<b>NIITE</b>	NCT	ST	<b>NIITE NIGHTTIME HOURS</b> Determine if Runway 10 take-offs can be authorized to use the NIITE. If not, create a departure to allow Runway 10 take-offs to make a left turn up the Bay to NIITE waypoint.	Apparently safety concerns resulted in the removal of the authorization for Runway 10 take-offs to use the NIITE. Perhaps these concerns could be reviewed to determine if another departure routing or transition could be created to ensure safety.
22	<b>NIITE</b>	WSC	ST	<b>NIGHT-NIITE/HUSSH:</b> determine if aircraft can file for SFO QUIET Departure or the OAK SILENT Departure and then be vectored in accordance with NCT SOPs out to GOBBS and then southbound.	Or perhaps there is a way for the nighttime hours southbound aircraft that would normally file for CNDEL/SSTIK, to file for NIITE with a GOBBS transition, then vector past PORTE to then go on-course. The WAMMY waypoint could also be used for this procedure.

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23	NIITE	NCT	ST	<p><b>NIITE NIGHTTIME HOURS</b> While awaiting authorization for Runway 10 departures to use the NIITE DP, the RT requests that aircraft be vectored to mirror the NIITE DP.</p>	<p>While awaiting authorization for Runway 10 departures to use the NIITE (or other appropriate procedure), the RT requests that RWY 10 departures be vectored in accordance with TRACON procedures - up the Bay (~330° heading) to join the NIITE or be vectored up to the vicinity of NIITE, thence vectored to the vicinity of GOBBS (and if southbound), thence via a southbound vector remaining well off the land.</p>
24	050° HEADING	NCT	ST	<p><b>SFO 050° HEADING NIGHTTIME HOURS APPLICABLE TO SFO AND OAK FLIGHTS</b> The RT supports the use the 050° heading from SFO Runways 01 and a comparable OAK Rwy 30 heading down the Bay at night. Runway 01 departures should not be increased, rather use a 050 heading in lieu of flying a procedure over the peninsula for aircraft with southern departures.</p>	<p>Use of a “down the Bay” heading -- ~ 050° heading for SFO and a comparable heading for OAK south departures is important procedure to reducing noise impact, <b>but not to imply that the Roundtable is requesting increased use of Runways 1 for departure.</b></p>
25	RWY 28 STRAIGHT OUT DEP NIGHTTIME RWY DEP	NCT	LT	<p><b>RWY 28/10 NIGHTTIME HOURS STRAIGHT-OUT DEPARTURES</b> During the nighttime hours only—Is there any ability to eliminate or raise the 3,000’ altitude limit on these departures?</p>	<p>Notwithstanding any existing airspace constraints, do the nighttime hours allow any flexibility in these constraints that could allow deleting the 3,000’ level-off or do aircraft have the ability to file for the GAP SEVEN departure that does not have a top altitude.</p>
26	RWY 28 DEP INCL ODO + NIGHTTIME RWY DEP	NCT	ST	<p><b>RWY 28/10 NIGHTTIME HOURS</b> Between 10pm and 7am, the RT requests use of SFO’s long-standing preferential runways for departure: Runways 10 then Runways 28 (TRUKN or NIITE) and then Runways 01. The TRUKN is similar to the legacy Shoreline departure up the Bay.</p>	<p>In accordance with NCT SOP. When aircraft use the SAHEY departure, aircraft should fly the procedure as charted and not vector over populated areas.</p>
27	RWY 28 DEP INCL ODO + NIGHTTIME RWY DEP	NCT	LT	<p><b>RWY 28/10 NIGHTTIME HOURS</b> Using the decommissioned DUMBARTON EIGHT procedure, create either an RNAV overlay of this procedure or create a new procedure with the same fixes used as waypoints for Runway 10L/R.</p>	<p>Creating an RNAV procedure based on the DUMBARTON EIGHT procedure will maintain legacy noise abatement procedures that keep aircraft over the bay, especially for nighttime flights.</p>
28	RWY 28 STRAIGHT OUT DEP	NCT	LT	<p>Determine if the existence of a VFR flyway or other conflicting airspace use off the coastline in the vicinity of the extended Runways 28 centerline, leads to Runway 28 straight-out departures being required to level off at 3000’.</p>	<p>If this altitude restriction is due to VFR airspace, determine if a modification of this VFR airspace is warranted in the current Class B Airspace Modification process. If due to other airspace restriction, what actions could be taken to ameliorate this conflict.</p>

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29	CNDEL	NCT	ST	Use Bay and Pacific Ocean for overflights as much as possible.	From the CNDEL waypoint, direct aircraft to a waypoint in the Pacific Ocean – potentially to the GOBBS waypoint in the ocean, then to WAMMY, before flying to PORTE. This would be the preferred solution as it would greatly reduce negative noise impacts because planes would be flying over water, rather than directly over people’s homes.
30	CNDEL	NCT	ST	This procedure should be flown as <b>charted</b> including flying over the CNDEL flyover waypoint and flying to the PORTE fly-by waypoint as specified in the departure procedure.	This reduces conflicts with SSTIK coming from SFO and reduces vectoring of both procedures, allowing SSTIK to utilize the Bay to gain altitude. Avoid any vectors before CNDEL; after CNDEL, avoid vectors as long as possible, avoid vectors that fly down the Peninsula to waypoints beyond PORTE. If vectoring is required for safety only -- minimize overflight of populated areas. If vectoring over the Bay and Ocean, use of the NIITE waypoints of NIITE and GOBBS for aircraft routing might be appropriate routing.
31	CNDEL	WSC	LT	Determine if a revised southbound transition (with additional waypoints) for the CNDEL procedure could “contain” the flight paths further west (perhaps over the ocean) to allow expanded clear space for possible modification of the SSTIK departure.	Utilizing the OAK HUSSH departure procedure during daytime hours should help avoid conflicts with SFO SSTIK, reduce the need for vectoring, increase the separation between these flight paths, and increase safety.  From the CNDEL waypoint, direct aircraft to a waypoint in the Pacific Ocean – potentially to the GOBBS waypoint, then to WAMMY, before flying to PORTE. This would be the preferred long term solution as it would greatly reduce negative noise impacts because planes would be flying over water, rather than directly over people’s homes.
32	CNDEL	WSC	ST	Determine if a southbound transition for CNDEL could effectively use flight over bodies of water to gain altitude before flying over populated areas.	Such a southbound transition should not move noise to noise-sensitive areas not under the published CNDEL Departure and should not interfere with a possible expanded SSTIK departure path.
33	CNDEL	NCT	LT	<b>CNDEL NIGHTTIME HOURS</b> For OAK southbound aircraft, until the NIITE southbound transition has been finalized, use of the NIITE/HUSSH DP or vectors to replicate the NIITE/HUSSH DP with a vector from GOBBS to the south to remain offshore would be a preferred nighttime alternative.	For OAK southbound aircraft, use of the left turn down the Bay (~135° heading) with no flight over sensitive areas is also supported.

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34	SSTIK	WSC	LT	Use Bay and Pacific Ocean for overflights as much as possible.	From the SSTIK waypoint, direct aircraft to a waypoint in the Pacific Ocean – potentially to the GOBBS waypoint, then to WAMMY, before flying to PORTE. This would be the preferred long term solution as it would greatly reduce negative noise impacts because planes would be flying over water, rather than directly over people’s homes.
35	SSTIK	WSC	LT	Create an RNAV overlay of the OFFSHORE ONE procedure to guide aircraft higher over the Bay before turning to a waypoint located in the ocean.	Using the legacy OFFSHORE procedure, create an RNAV overlay to keep aircraft higher and widely dispersed over the peninsula as they fly to the ocean (instead of down the peninsula) to WAMMY, before flying to PORTE.
36	SSTIK	NCT	ST	Use the OFFSHORE ONE procedure for aircraft departures. Higher altitude over water is preferred.	<p>While awaiting the development of an OFFSHORE ONE RNAV overlay, NCT is requested to use the OFFSHORE departure procedure for flights to Southern California destinations such as: LGB, SNA, SAN, SBA and Mexican airspace.</p> <p>Planes should be directed to fly as high as possible over the SEPDY waypoint (over the Bay), allowing them to be higher in altitude before turning over land, with a steady altitude increase as they make their way to the ocean. A relatively wide dispersal of flight paths after the turn to the ocean is preferred.</p>
37	SSTIK	NCT	ST	Avoid non-safety vectoring prior to SEPDY waypoint.	Early vectors cause dramatically increased noise to residents. Once past SEPDY, a relatively wide dispersal of flight paths to the ocean is preferred. Avoid any vectoring that bypasses PORTE. If vectors are needed for safety – and regardless of altitude – avoid vectors down the Peninsula to waypoints beyond PORTE.
38	SSTIK	WSC	LT	Move SSTIK N + E as much as feasible to allow maximum altitude gain before turning to fly over land using the historic SEPDY waypoint as a guide.	<p>Create an additional waypoint over the ocean to guide aircraft over water to PORTE such as the legacy WAMMY waypoint associated with the OFFSHORE procedure.</p> <p>Determine if the minimum altitude required at SSTIK can be raised before a left turn (vicinity of SSTIK).</p> <p>Determine if a reduced airspeed (~220kts) can be required until after established in the left turn from SSTIK so aircraft climb at a higher angle of climb approaching land.</p> <p>A relatively wide dispersal of flight paths after the turn to the ocean is preferred.</p>



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Response to the *FAA Initiative to Address Noise Concerns*

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39	DEPARTURE/ ARRIVAL  PROCEDURE ASSIGNMENT	WSC	ST	The RT requests that the FAA determine if any aircraft were assigned or re-assigned-- via preferential runway or otherwise-- from one departure or arrival to a different departure or arrival.	
40	TAKE-OFF  BACKBLAST NOISE	RT/ SFO/ FAA		The RT recommends that SFO allocate funds or work with the FAA to obtain grant money to commission an updated Technical Study of the backblast noise from takeoffs at SFO. The RT will work with SFO to develop Technical Study parameters and will later review and monitor improvements recommended in the Technical Study.	Backblast noise from SFO takeoffs primarily affects the communities south of Runway 1L/1R departures as well homes more distant. Although Runways 10L/10R are used infrequently, backblast from these takeoffs affects communities to the west of Runways 10L/R departures. Since technology improvements are regularly attained, the RT requests that SFO to conduct an up-to-date Technical Study of options to include community input and without limitation on cost of improvements.
41	MID- PENINSULA +  VECTORIZING  FAA EQUIPMENT	NCT	LT	The RT requests that the FAA determine if upgraded radar display equipment or notations on the map using symbols would be helpful to TRACON controllers to increase the use of less impactful areas if vectoring is required for safety for departing and arriving flights.	The RT understands that controllers are limited in their ability to effectuate vectoring over more compatible land use. The controllers' display shows very vague outlined areas of Bay, Ocean and land masses. The RT can work with NCT to determine areas that could be identified on the radar scopes as noise sensitive without increasing the complexity of the scopes.
42		RT	ST + LT	<b>The SFO Airport and the SFO RT will support the FAA in their efforts. The RT will provide data regarding land use and terrain height for areas throughout the RT region to assist NCT in using less sensitive noise areas for vectoring. SFO and RT will work with airline representatives to encourage use of "noise-friendlier" options for flight planning and operations. The RT will provide community input to the FAA and will make recommendations to the FAA based on community consensus for changes.</b>	
END					



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## **ATTACHMENT C**

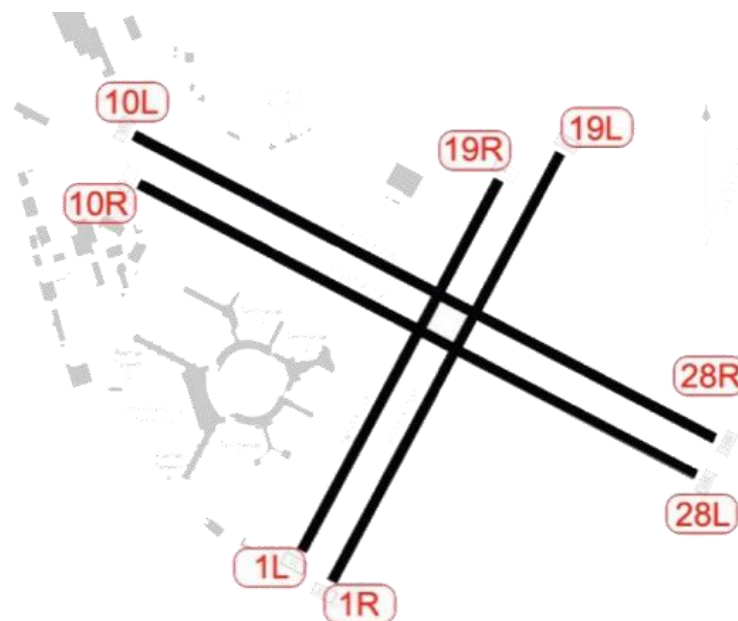
### **TECHNICAL DISCUSSION PACKAGE SFO AIRPORT/COMMUNITY ROUNDTABLE RESPONSE TO FAA INITIATIVE**

## INTRODUCTION

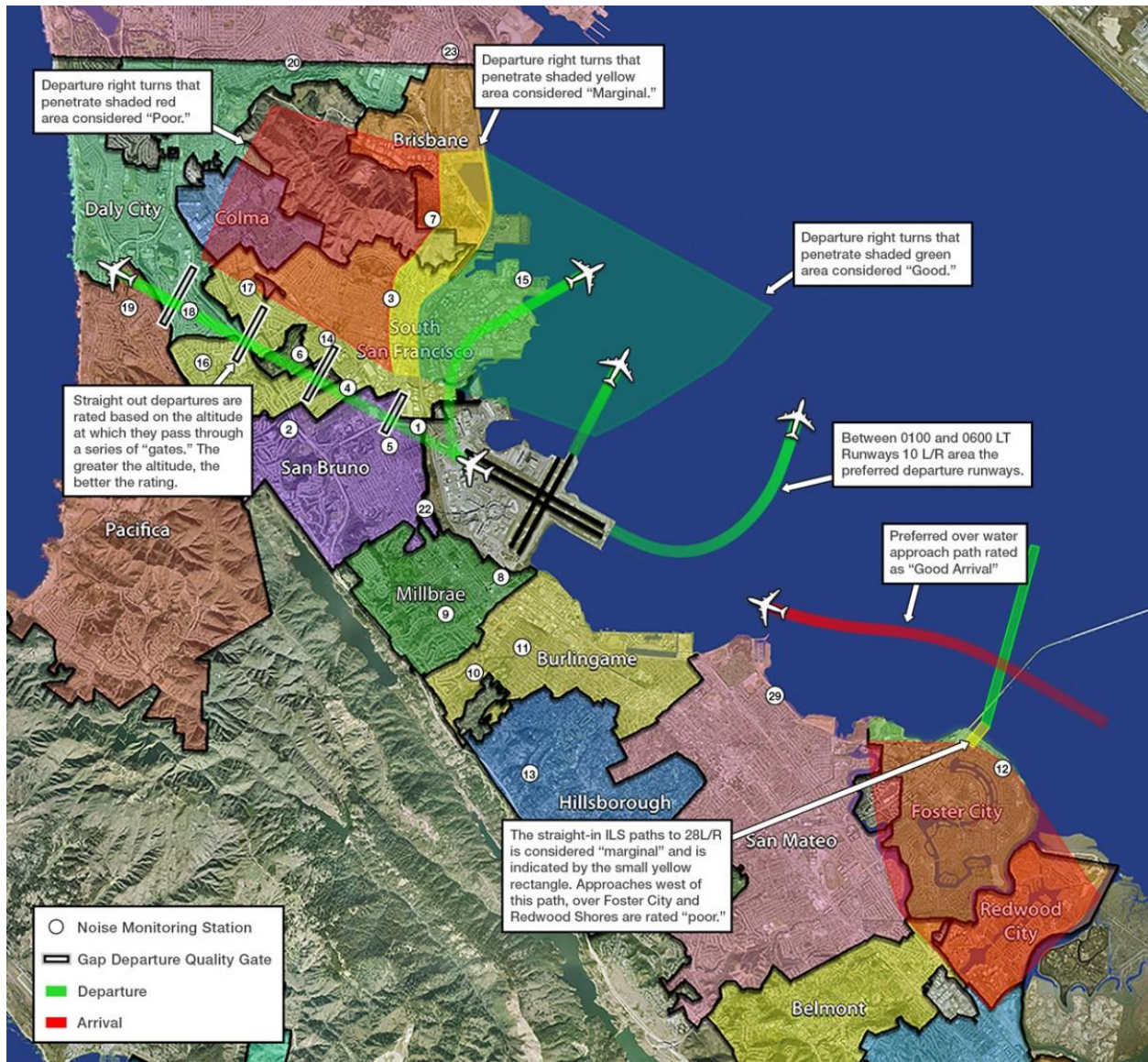
This attachment to the Roundtable’s response to the FAA *Initiative* is to expand on information in the letter to Congressional Representatives Speier, Eshoo, and Farr, detailing specific procedure operations as they fly today and any changes the Roundtable is requesting. Each of the “Attachments” has the following sections:

- **Description** – details the procedure(s) as they are flown today.
- **Executive Working Outline** – Cross-references the items in this Attachment with those in the Executive Working Outline (Attachment A) submitted in the overall package to the Congressional representatives.
- **Primarily Impacted Cities** – notes the cities that are most directly under the flight path(s) of the procedures being described.
- **Noise Issues** – the primary existing noise issues due to the procedure.
- **Roundtable Requests (Short Term, Long Term)** – details what mitigation efforts the Roundtable is requesting the FAA implement either in the short or long term, depending on the detail of the request. For this document, short term is defined as less than 9 months and long term is up to three years.
- **Collaboration** – requests the appropriate agencies to work on each mitigation effort. Initial Requested FAA Research – if applicable, requests the FAA research specific operational items related to the mitigation efforts.

There are two airport diagrams shown here; the first one shows the runways with each runway end labeled, and the second is SFO’s Fly Quiet map that shows the general parameters of the Fly Quiet program in a graphic format.



Runways at SFO



SFO Noise Abatement Office Fly Quiet Program Illustration

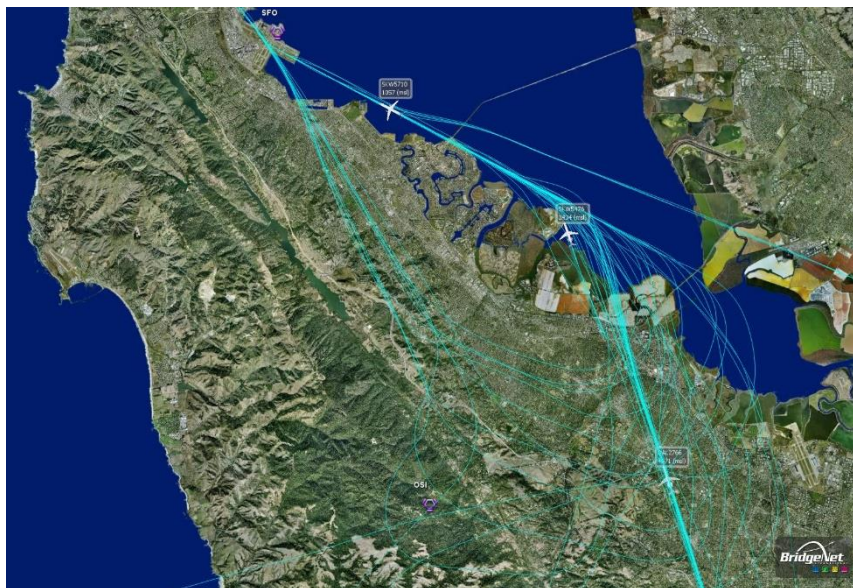
In this document, the following abbreviations are used:

- **Mean Sea Level (MSL)** – refers to an aircraft altitude in relation to its location above the average level of the earth’s surface.
- **Above Ground Level (AGL)** – refer to an aircraft altitude in relation to its location relative to the ground below.
- **Nautical Miles (NM)** – the length of a mile used for navigation purposes. All references to miles in this document refer to nautical miles; a nautical mile is 6,076 feet.

**PROCEDURE:** Woodside VORTAC  
BDEGA+

**ADJUSTMENT:** 2.a.i.

### WOODSIDE AND MID-PENINSULA



*Woodside and Peninsula Flight Tracks*

**DESCRIPTION:** Aircraft fly in the vicinity of the Woodside VORTAC (a ground-based navigational aid) to arrive at SFO and OAK; this discussion will focus on aircraft arriving at SFO. Aircraft fly over the Woodside VOR area when arriving from the ocean as well as vectored aircraft from the south and north.

**OCEANIC ARRIVALS:** Aircraft that fly over this area from the ocean are typically flying a course and altitude as assigned by ATC. A minority of these oceanic flights are cleared via the Ocean Tailored Arrival (OTA), an optimized profile descent using idle power and crossing Woodside VOR at approximately 6,000' MSL. Oceanic arrivals not on the OTA are assigned to cross Woodside VOR at or above 8,000' MSL when traffic permits. The SFO Noise Abatement Office tracks airline adherence to this procedure on a weekly basis to determine if aircraft crossed the Woodside VOR above 7,700' MSL (because of instrument tolerances an altitude at or above 7,700' is considered to be in compliance with the 8,000' requirement).<sup>1</sup> While the noise office tracks adherence to the procedure 24-hours a day, in its twice-weekly reports, the noise office publishes adherence during the hours of 10:30 pm – 6:30 am.

<sup>1</sup> <http://www.flysfo.com/community-environment/noise-abatement/reports-and-resources/woodside-vor>

**SERFR AND OTHER ARRIVALS FROM THE SOUTH:** Approximately half of the aircraft that fly over this area from the south, typically on the SERFR arrival, are vectored off course to achieve and maintain required separation distance from other aircraft until the aircraft can be sequenced in line for approach and landing at SFO.

**BDEGA AND OTHER ARRIVALS FROM THE NORTH:** Aircraft arriving from the north on the BDEGA arrival are instructed to proceed on one of two paths – an east downwind which overflies the Bay (“down the Bay”) or a west downwind flying over SFO then southeast down the length of the Peninsula before making a “U-turn” or teardrop turn toward SFO. Vectoring is utilized to achieve and maintain required separation distance from other aircraft until the aircraft can be sequenced in line for approach and landing at SFO; aircraft must be vectored from the final point on the BDEGA Standard Terminal Arrival Route (STAR) approach procedure, which is over SFO called BRIXX.

**EXECUTIVE OUTLINE:** BDEGA 1-7, SERFR 8 - 9, BDEGA West 10, DYAMD 11 and MENLO 16

**PRIMARILY IMPACTED CITIES:** Woodside, Portola Valley, Menlo Park and the surrounding area as well as numerous Mid-Peninsula Cities.

**NOISE ISSUES:** It is important to note the topographic variety in the Bay Area. The areas in the south Peninsula overflowed by these procedures are located on large, wooded lots that have low ambient noise levels similar to what can be found in a national park setting. There are also peaks in the area that rise to 2,000’ MSL, including the area around the Woodside VOR that is populated. In the early morning and late night hours, aircraft noise is especially prevalent and intrusive given the low ambient noise levels.

## **SFO ROUNDTABLE REQUESTS:**

### **Short Term**

1. For daytime BDEGA and other arrivals from the north, the Roundtable requests that the FAA use all available opportunities to assign arrivals from the north to an east downwind “down the Bay.” Historically the east leg of the BDEGA arrival has been used up to 57% of the time; in May 2016, the FAA reported use of the BDEGA east leg was 28%, continuing a downward trend of using the east leg for arrivals since May 2010.
2. The SFO RT recommends that the FAA increase the in-trail spacing of aircraft on the SERFR arrival, flying the procedure as charted, which will decrease the need for vectoring. For this arrival, the SFO RT also recommends increasing the altitude of the arrivals on the assigned routes as well as the vector traffic.

3. During the FAA-defined nighttime hours of 10 pm – 7 am, the Roundtable requests every effort should be made to use the Bay for 100% of the arrivals from the north and west, use the east downwind or the “down the Bay” procedure.

## **Long Term**

1. BDEGA Arrivals from the North and West: The SFO Roundtable requests reinstatement of BDEGA FINSH transition in order to facilitate increased use of the east downwind (“down the Bay”) to Runway 28R. The BDEGA ONE arrival originally had two transitions from CORKK waypoint – one transition to BRXX for the west downwind and one transition to FNISH (in the middle of the Bay) for the east downwind. The current BDEGA TWO arrival no longer shows the FNISH transition.
2. BDEGA Arrivals from the North and West: The SFO Roundtable is available to provide data to the FAA regarding terrain and land use for aircraft arriving on the BDEGA east leg and can work with the FAA to move the east downwind leg of the arrival over compatible land uses. In order to reduce vectoring on the Peninsula, the SFO Roundtable requests the FAA to increase in-trail spacing on the SERFR Arrival, on the DYAMD Arrival (to allow an increase in the BDEGA East Downwind, and determine if an increase in the BDEGA in-trail spacing would decrease vectoring.

## **COLLABORATION:**

1. The SFO Roundtable is available to provide data to the FAA regarding land use areas to assist in keeping procedures over compatible land uses as much as feasible during the day. The goal during the nighttime hours is to avoid flight over noise-sensitive land uses as much as feasible, even if it means a few additional track miles.
2. The SFO Roundtable will work with airline representatives to request that during the night time hours, airlines file oceanic flight plans that follow the path of BDEGA arrival for an FAA assigned east downwind for Runway 28R (down the Bay procedure) instead of flying over the peninsula.
3. The SFO Roundtable will work with airline representatives to request that during the night time hours, airlines file routes from the south to a point east of the Bay in order to use a noise-friendlier approach to Runway 28R.
4. The SFO Roundtable requests that NCT update its SOP to reflect using a “down the Bay” procedure is preferred during nighttime hours.

**Attachment C: Technical Discussion Packages**

Response to the *FAA Initiative to Address Noise Concerns*

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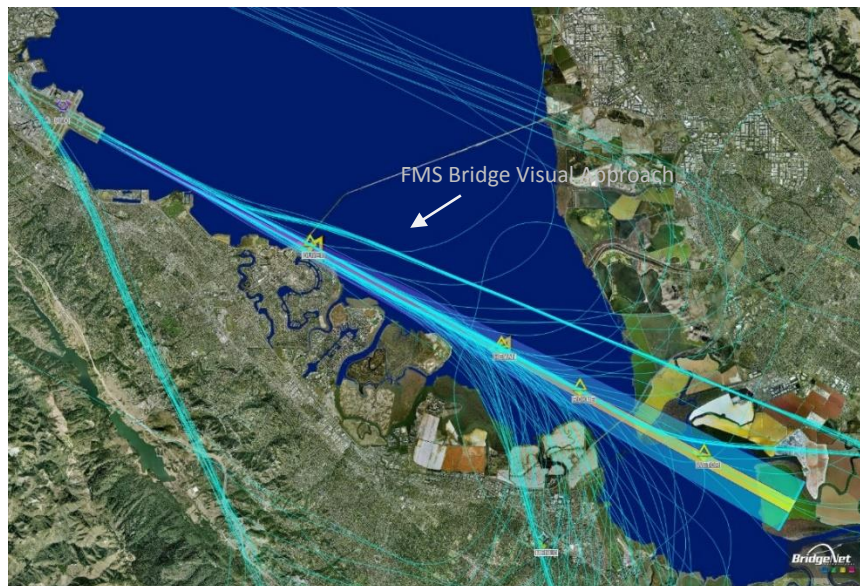
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**REQUESTED FAA RESEARCH:**

1. Determine if the BDEGA transition to FINSH can be reinstated. If so, determine a timeline for this revised procedure to be included for publication.
2. The SFO Roundtable requests that the FAA research to compare the previous Golden Gate arrival with the current BDEGA arrival to determine what changes have been made in actual flight tracks with regard to location of lateral paths, narrowing of path and concentration of aircraft. The previous Golden Gate arrival directed aircraft to fly a 140° heading after SFO/BRIXX, but the BDEGA directs aircraft to fly a 140° track after BRIXX. While this change seems minor - flying a track instead of a heading - it would result in a more concentrated invariable path, contrasted with using a heading, which, depending on the direction and velocity of wind could create somewhat dispersed paths.
3. The SFO Roundtable requests that the FAA research reasons for the continued increased use of the BDEGA west leg from May 2010 – present.



<b>PROCEDURE:</b> Visual Arrivals, Foster City Arrivals	<b>ADJUSTMENTS:</b> 1.b.iii., 1.b.iv., 1.b.v.
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**DESCRIPTION:** Runways 28L and 28R are the primary runways for landing at SFO when the airport is using the West Plan which is 85% of the time. Runways 28L and 28R are each served by a precision electronic Instrument Landing System (ILS). The lateral path for the Runway 28L ILS goes over the city of Foster City while the lateral path for Runway 28R ILS is slightly offshore. An ILS approach is used when the SFO weather is IMC (Instrument Meteorological Conditions) and pilots cannot visually see the airport and must rely on their instruments to be guided to the runway.

During VMC (Visual Meteorological Conditions), aircraft flying visually to 28L will generally replicate the Runway 28L ILS lateral path which provides separation from the Runway 28R lateral path. Aircraft flying visually to Runway 28R can fly offset visual approaches such as the FMS Bridge Visual Runway 28R or the RNAV (RNP) Runway 28R. These Runway 28R offset visual courses fly closer to the center of the Bay and do not intercept the Runway 28R ILS lateral path until just past the San Mateo Bridge. There is no offset approach for Runway 28L.

**EXECUTIVE SUMMARY:** RWY 28 Approaches 12 – 15

**PRIMARILY IMPACTED CITIES:** Foster City, Menlo Park and other bayside cities.

**NOISE ISSUES:** Aircraft in a landing configuration is also known as a 'dirty' configuration, which means that the landing gear and flaps are deployed for the impending landing. Each of these pieces of the aircraft that extrude - the flaps, speed brakes, landing gear and the engines all contribute to noise generated by an aircraft on

arrival. When air travels over these extended surfaces, it is disrupted by the different surfaces coming into contact with the air. The more surfaces come in contact with the air, the louder the aircraft will be to those on the ground. At this point, aircraft are approximately seven miles from the airport at altitudes below 2,000' MSL. This can be very disruptive to sleep as well as to activities of daily life.

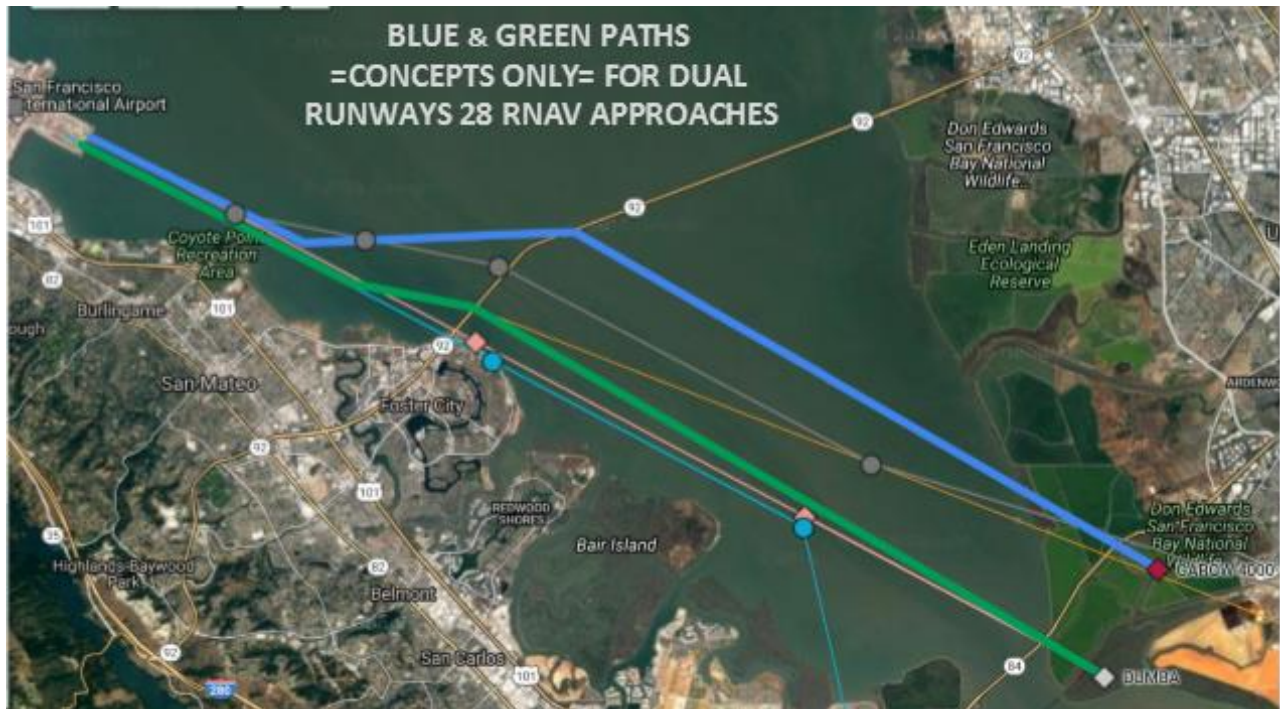
## **SFO ROUNDTABLE REQUESTS:**

### **Short Term:**

1. Dual Visual Approaches: Whenever there are arrivals to both Runway 28L and 28R, and VMC conditions allow, aircraft for Runway 28R should be assigned to fly the FMS Bridge Visual Runway 28R or RNAV (RNP) Runway 28R (as capable), Quiet Bridge Visual or other noise friendlier approach to land on Runway 28R.
2. Single Stream Visual Approaches: Regardless of the time of day, and when conditions and traffic allow, whenever there is a single stream operation to only one runway, aircraft should arrive only on Runway 28R and should be assigned to fly the FMS Bridge Visual 28R or RNAV (RNP) Rwy 28R (as capable), Quiet Bridge Visual or other "noise friendlier" approach to land on Runway 28R.
3. During the nighttime hours ATC should make every effort to coordinate traffic arrivals to create a single stream of traffic to land only on Runway 28R. Depending on weather conditions, aircraft would be expected to fly the FMS Bridge Visual 28R, the RNAV (RNP) Runway 28R, (or if conditions require) the ILS 28R or other approach to Runway 28R which minimizes noise impact to Foster City and other Bayside communities.
4. With air traffic control anticipating these arrivals to the right runway, efforts can be made to reduce any time spent waiting for aircraft to depart Runway 28L and coordinate these arrivals and departures.

### **Long Term**

1. Research the feasibility of creating dual offset RNAV, RNAV (RNP) or other type of approach to Runway 28L and to Runway 28R which would create two offset paths closer to the middle of the Bay with both Runway 28L path and 28R path remaining well clear of Foster City and other bayside communities until past the San Mateo Bridge when aircraft would then line up with each runway for landing.



**TEAL LINE:** existing 28L ILS. **PINK LINE:** existing 28R ILS. **GRAY LINE:** existing RNAV (RNP) Y RWY 28R. **ORANGE LINE:** existing FMS Bridge Visual Approach 28R. **GREEN LINE:** Concept for a possible 28L offset RNAV approach. **BLUE LINE:** Concept for a possible 28R offset RNAV approach. ALL POINTS AND LINES APPROXIMATE.

## COLLABORATION:

1. The SFO Roundtable will work with NCT management to illustrate the importance of the use of Runway 28R instead of Runway 28L during periods of single stream operations and the critical nature of nighttime operations which might require managing arrival traffic to create a single stream of traffic to 28R.
2. The SFO Roundtable will provide information and community input to the FAA regarding the process of creating, if feasible, of dual satellite-based Runway 28L and 28R offset approaches closer to the middle of the Bay.

## REQUESTED FAA RESEARCH:

- There is no additional research requested.

<b>PROCEDURE:</b> NIITE	<b>ADJUSTMENTS:</b> 1.f.iii, 2.a.ii., 2.a.ii.(c)., 2.f.i., 2.f.vi.
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*NIITE Procedure*

**DESCRIPTION:** The NIITE departure is designed to be used only during nighttime hours as a noise abatement procedure when the volume is light and typically used by aircraft departing Runway 01 L/R at SFO during nighttime hours; aircraft will use the NIITE departure off Runway 28 L/R, but it is more commonly used off Runway 01. After takeoff, the aircraft flies northeast to a waypoint approximately six miles northeast of SFO called MDBAY. At this point aircraft turn towards the north to the NIITE waypoint, located approximately 12 miles north of MDBAY just north of Treasure Island, then northbound or eastbound aircraft turn to the north to the REBAS waypoint over Richmond, and westbound aircraft fly west to the GOBBS waypoint located approximately 11 miles west of the Golden Gate Bridge in the Pacific Ocean. The GOBBS portion of the procedure is charted, but has not been adopted for use by Northern California TRACON on this procedure. This procedure replaced the conventional navigation QUIET departure.

**EXECUTIVE OUTLINE:** NIITE 23

**PRIMARILY IMPACTED CITIES:** Brisbane, Burlingame, Daly City, Pacifica, Millbrae, San Francisco, South San Francisco and other mid-Peninsula communities.

**NOISE ISSUES:** Aircraft overflying compatible land uses reduce the number of citizens experiencing aircraft overflights during nighttime hours. Aircraft that can use the NIITE procedure instead of flying over the peninsula can reduce noise impacts for thousands of residents each night. Aircraft flying over the peninsula are overflying areas rich in diverse topography. This impacts how cities under the departure path experience aircraft noise; there are numerous ridges and peaks leading to valleys that experience aircraft noise differently than if it was all flat land. Aircraft using Runway 01 L/R also generate back blast noise from when aircraft start their departure roll to lifting off the ground. This reverberating noise is difficult to mitigate and very intrusive to cities west of Runway 01 L/R.

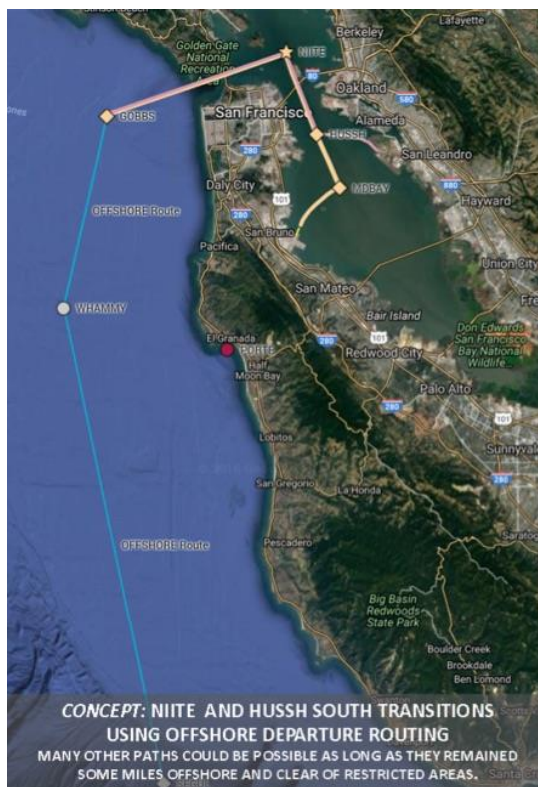
## **SFO ROUNDTABLE REQUESTS**

### **Short Term**

1. Southbound Transition: While undergoing the formal process of amending the NIITE departure to add a transition for southbound aircraft past GOBBS and adopting GOBBS for use, the Roundtable requests that NORCAL TRACON work with the SFO RT to determine if an interim informal procedure based on TRACON vectors might be feasible during the nighttime hours only to approximate the NIITE departure which would be heading up the Bay to NIITE, then west to GOBBS, then south-south-east to the PORTE or WAMMY waypoint, remaining clear of the shore. While the Roundtable is asking for the NIITE procedure to be used, it is not requesting increased use of Runway 01 L/R for departures, especially at night.
2. Keep aircraft on the NIITE procedure as much as possible to reduce vectoring; aircraft remaining on the NIITE procedure until the REBAS waypoint (for eastbound flights not affecting San Francisco or San Mateo Counties) located near the city of Richmond will keep aircraft over compatible land uses. In the future, when the NIITE southbound transition is implemented, the SFO Roundtable requests that the NIITE south be adhered to in its entirety without vectoring.
3. Runway 10L/R: While undergoing the necessary research and procedure development to enable Runway 10 L/R departures to use the published NIITE departure, the SFO Roundtable requests that NORCAL TRACON use its longstanding noise abatement procedure to vector Runway 10 L/R departing aircraft up the Bay (approximate heading of 330°), then vector as needed for routes of flight such as from NIITE to GOBBS (if the destination is to the west or south), in accordance with guidance for westbound aircraft in NCT 7110.65: *Between the hours of 10:00 pm - 7:00 am local (Sundays to 8:00 am), vector oceanic departures over the Bay to pass over the north end of the Golden Gate Bridge.*

4. While not increasing the actual number of aircraft using Runway 01 L/R, the Roundtable urges the for those aircraft using Runways 1L/1R, that the FAA continue to use the 050° heading option for southbound flights at night instead of the SSTIK procedure for south-bound departures.

## Long Term



**BEIGE LINE** (approximate): Depicts current SFO NIITE Departure. **PINK LINE** (approximate): Depicts OAK HUSSH Departure. **BLUE LINE**: illustrates one concept option for the NIITE/HUSSH Departure South Transition. Other options can be designed as long as they remain well clear of the shoreline and remain clear of any restricted airspace.

1. NIITE Southbound Transition: The SFO Roundtable is in agreement with FAA Initiative Adjustment 2.f.i and formally requests that the FAA add a transition to the NIITE departure for southbound aircraft.

Without presuming to technically design such a south transition, it would seem that this highly desirable southbound destination transition *might* be comprised of a single, simple “add-on” leg, using the existing NIITE departure to the GOBBS waypoint, and thence via already largely existing waypoints and flight paths mirroring much of the PORTE departure to PORTE intersection. In addition, the routing of the OFFSHORE departure may present an additional option using the WAMMY waypoint. The SFO Roundtable understands that the design of professional flight procedures encompasses far more than a line drawn on a

map, and understands that airspace use and airspace restrictions are significant challenges in this process.

The possible southbound transition for the NIITE departure depicted above contains just two concepts to consider. The “add-on” paths depicted seem desirable not only because they keep aircraft largely over the Pacific Ocean, but also because a significant portion of the “add-on” paths are routinely used in the PORTE and OFFSHORE departures. Many other paths for this southbound transition could be designed that would also keep aircraft over the ocean.

Once implemented, the concept for the NIITE southbound transition would be that during night time hours, the airline dispatcher would file for the NIITE departure with the new southbound transition. At the time of takeoff, if conditions and SFO Tower/TRACON workloads permit, an aircraft departing Runway 01 L/R will be offered the option of the 050° heading down the Bay departure instead of the filed NIITE/south transition.

2. NIITE Departure with Runway 10 takeoffs authorized: The SFO Roundtable requests that the NIITE departure and all transitions be amended to include authorization for its safe use by aircraft taking off from Runway 10 L/R.

#### **COLLABORATION:**

##### **NIITE Southbound Transition & NIITE Departure with Runway 10 takeoffs authorized:**

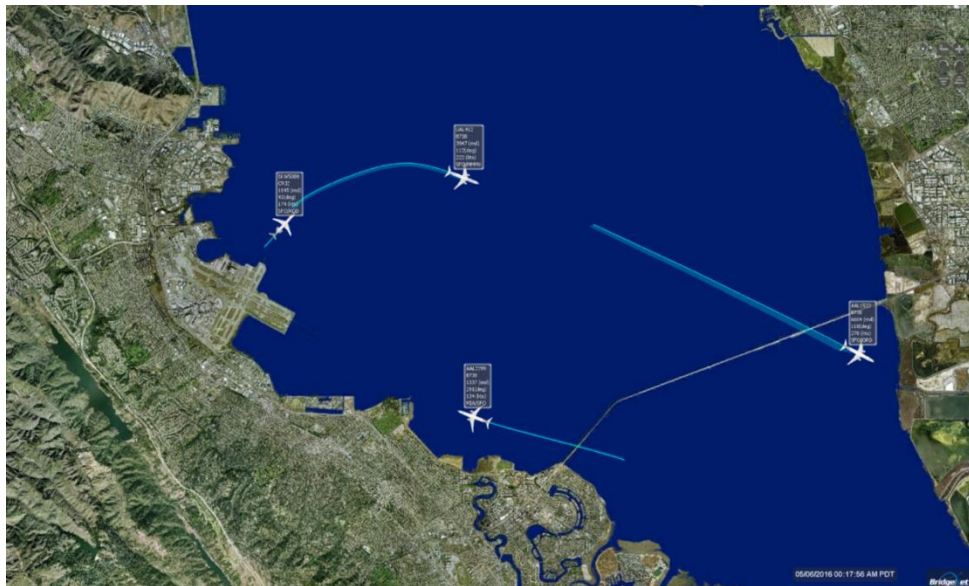
1. The SFO Roundtable will provide input regarding the new southbound transition and will elicit community input and response to the design of the new NIITE southbound transition and Runway 10 L/R NIITE authorization.

#### **REQUESTED INITIAL FAA RESEARCH:**

- There is no additional research requested.

**PROCEDURE:** 050° Heading Off Runway 01

**ADJUSTMENTS:** 2.e.ii., 2.g.ii.



Runway 01 L/R Flight Tracks

**DESCRIPTION:**

Aircraft departing during nighttime hours on Runways 1L/1R for southern destinations typically fly the SSTIK departure; the NIITE departure, the published noise abatement procedure, is typically only used for aircraft with northern or eastern destinations. During nighttime hours only and when traffic permits, ATC can assign a Runway 1L/1R departure to fly an initial heading of 050° with further right turns down the Bay until reaching a higher altitude and then direct them on course to their destination. This 050° initial heading can also be used to allow eastbound aircraft to gain additional altitude before turning them onto an easterly heading which reduces noise impact for East Bay residents. The 050° initial heading was originally created through collaboration between the Roundtable and TRACON, to help reduce noise impacts at night.

Typically, aircraft departing from OAK Runway 30 at night will also use the Bay for aircraft to climb before flying over land.

**EXECUTIVE SUMMARY:** 050 Heading 24, Takeoff Backblast Noise 39, Mid-Peninsula +Vectoring 40

**IMPACTED CITIES:** Brisbane, Daly City, Pacifica, San Bruno, San Francisco, South San Francisco and other north Peninsula cities.



**NOISE ISSUES:** Aircraft using compatible land uses reduce the number of citizens experiencing aircraft overflights during nighttime hours. Aircraft that can use the 050° heading procedure instead of flying over the Peninsula and San Francisco can reduce noise impacts for thousands of residents each night. Aircraft flying over the Peninsula are overflying areas rich in diverse topography. This impacts how cities under the departure path experience aircraft noise; there are numerous ridges and peaks leading to valleys that experience aircraft noise. Aircraft using Runway 01 L/R also generate back blast noise from when aircraft start their departure roll to lifting off the ground. This reverberating noise is extremely difficult to mitigate and very intrusive to cities southwest of Runway 01 L/R.

### **SFO ROUNDTABLE REQUESTS:**

#### **Short Term**

1. Use the 050° heading at night to the maximum extent feasible for aircraft departures to southern destinations instead of the SSTIK departure procedure that flies over the Peninsula and San Francisco. The request for maximum use of the 050° heading departure procedure is ***not a request to increase the number of flights using Runways 1L/1R*** since back blast from Runways 1L/1R departures have a noise impact on the cities southwest of the departure end of Runways 1L/1R.
2. The Roundtable also requests the use of a comparable heading down the Bay for southbound flights taking off from OAK.

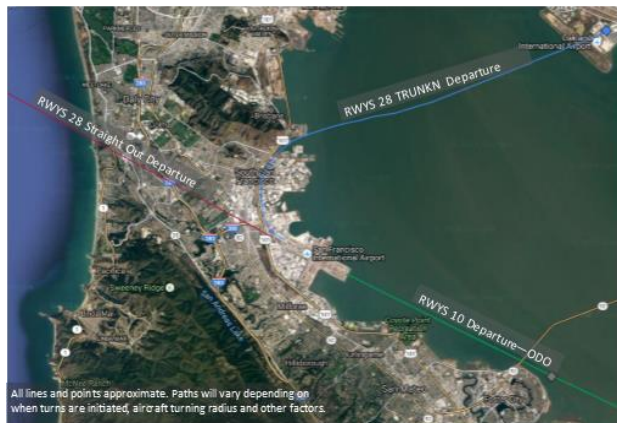
#### **Long Term**

Continue flying the 050 heading when able during nighttime hours.

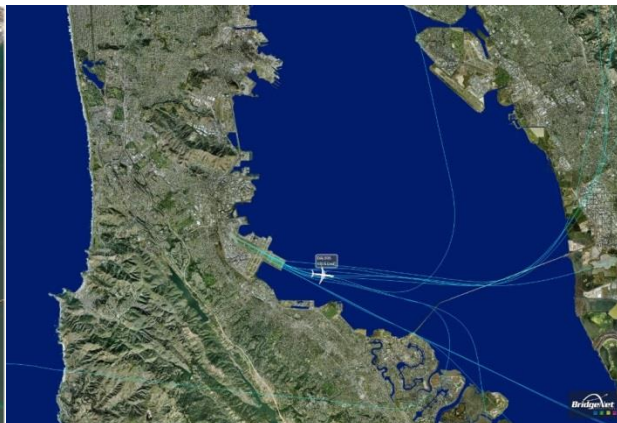
### **REQUESTED FAA RESEARCH:**

- There is no additional research requested.

<b>PROCEDURE:</b> Opposite Direction Operations	<b>ADJUSTMENTS:</b> 2.e.i., 2.e.ii., 2.e.iii., 2.g.i., 2.g.ii.
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Runway 28 Departure Options



Runway 10L/R Radar Flight Tracks

### RUNWAYS 28 DEPARTURES including OPPOSITE DIRECTION OPERATIONS

**DESCRIPTION:** San Francisco International Airport has two pair of intersecting runways. The two runways oriented north and south (1L/19R and 1R/19L) are shorter than the two runways oriented east and west (28L/10R and 28R/10L). The majority of takeoffs use runways 1L and 1R. However, some aircraft which are heavily loaded (fuel, passengers, cargo) cannot safely takeoff from the shorter runways and must use the longer runways (28L and 28R).

When an aircraft requires the longer runway for takeoff, there are typically three departure choices:

1. Runways 28L or 28R flying straight out the “gap” to the ocean coastline. This is the most impactful departure with noise events to residents reaching 100 dBA.
2. Runways 28L or 28R with an immediate right turn after takeoff towards the Bay. (TRUNKN departure procedure, formerly Shoreline, going up the bay).
3. During nighttime hours only, there may be an option to takeoff from Runways 10L or 10R flying over the Bay using a highly regulated procedure called Opposite Direction Operations.

#### DAYTIME AND NIGHTTIME:

Departing jet traffic flying straight out from Runway 28 are initially climb restricted to 3,000’ MSL to allow for possible VFR traffic in a VFR flyway or other airspace restriction. While the departing jets are not usually kept to 3,000’ MSL for a long time, any level off in this high noise departure is significant.

#### **NIGHTTIME:**

SFO has had a long-standing nighttime preferential runway use program in place. This program's goal is to utilize the Bay as much as possible for nighttime procedures to keep aircraft over compatible land uses and not fly over populated areas. For SFO, this means use of the Bay for arrivals and departures as much as possible. The preferred nighttime runway use is to depart to the east from Runway 10 L/R over the Bay, and arrive from the west on Runway 28 L/R, which is the typical arrival runway. This type of operation is called Opposite Direction Operations (ODO) when aircraft depart and arrive over the same flight path but at different points in time.

The ability to use the opposite direction operations procedure is limited. Its use is largely dependent on three factors: 1) weather conditions including ceiling, visibility and wind direction and velocity; 2) performance capabilities of the aircraft (primarily whether it can safely takeoff with even a small amount of tailwind or needs a headwind); and 3) the location and distance of any aircraft approaching to land on Runways 28.

ODO regulations have changed over the years since the inception of SFO's nighttime preferential runway use program. It is now more regulated and the arriving and departing aircraft must have more distance between them to use ODO.

**EXECUTIVE SUMMARY:** RWY 28 Straight Out Departures 25 – 28

**PRIMARILY IMPACTED CITIES:** Daly City, Pacifica, San Bruno, San Francisco, South San Francisco.

**NOISE ISSUES:** The San Francisco Bay area is an area rich in diverse topography. This impacts how cities under the departure path experience aircraft noise; there are numerous ridges and peaks leading to valleys that experience aircraft noise differently than if it was all flat land, including San Bruno Mountain close to the airport and Sweeny and Milagra ridges closer to the ocean. At night, some aircraft that require a longer runway that aren't on an ODO departure typically depart "out the gap" on Runway 28 L/R (i.e. straight out), flying west over numerous densely populated cities. These aircraft include those that are flying long distances to Asia and are large, fully loaded wide body aircraft. The ability to utilize Runway 10 L/R more will greatly alleviate thousands of residents being disturbed by Runway 28 gap departures in the middle of the night.

#### **SFO ROUNDTABLE REQUESTS:**

##### **Short Term**

1. The SFO Roundtable requests that, during the nighttime hours and traffic permitting, TRACON use a longstanding TRACON procedure for aircraft taking off on Runway 10 L/R by vectoring them north up the Bay (using an approximate 330° heading) and then, if westbound, vectoring them to the Pacific Ocean. The

following excerpts from presentations and TRACON documents show the existing precedent for using this type of procedure.

SFO Tower Noise Abatement Primer (4/3/13) presented to SFO Roundtable Training:  
*“330 and 050 heading on mid-shift”*

NCT 7110.65D (8/20/15):  
*Between the hours of 2200 and 0700 local (Sundays to 0800), vector oceanic departures over the Bay to pass over the north end of the Golden Gate Bridge.*

SFO Tower Noise Abatement Primer (4/3/13) presented to SFO Roundtable Training:  
*Mid-shift runway 10 oceanic departures taken over north tower GGB (NCT)*

2. The SFO Roundtable requests that the SFO Airport Director coordinate with the FAA to maintain the existing SFO ANAO nighttime preferential runway use in place, including Runway 10 L/R as the preferred nighttime runway for takeoffs; aircraft using the SAHEY departure should not be vectored and stay over the bay.
3. The SFO Roundtable requests that the SFO Airport Director work with the Roundtable to coordinate outreach efforts to educate dispatchers and pilots on the importance of considering the use of a Runway 10 L/R ODO departure to the impacted communities.
4. When Runway 28 L/R must be used for nighttime departures, the SFO Roundtable requests use of the GAP SEVEN departure that does not have a top altitude restriction.

## **Long Term**

1. It should be determined if any VFR flyway results in Runway 28 straight-out departures being assigned a 3,000' altitude restriction. If so, determine if a modification of any VFR flyway is warranted in the current Class B Airspace Modification process to allow unrestricted climbs for SFO Runway 28 jet traffic. If the altitude restriction is due to other factors, determine if the other factors can be modified to allow unrestricted climb.
2. Create a procedure that includes the ability of aircraft to depart Runway 10 L/R on a heading that isn't in the direct path of aircraft arriving on Runway 28, such as making an immediate left turn after takeoff or flying to the east of the Runway

28 arrival path to provide lateral separation; for vertical separation, use altitude restrictions for the departing aircraft.

3. Create a Runway 10L/R RNAV departure that mirrors the decommissioned DUMBARTON EIGHT procedure, keeping aircraft over the bay to gain altitude before turning. Mirroring the DUMBARTON could include making adjustments to SAHEY to ensure aircraft will remain over the bay before turning towards their destination.

**COLLABORATION:**

1. The SFO Roundtable will provide information to the FAA to assist in a review of options for aircraft to use Runway 10 L/R that does not use the same flight path as a Runway 28 L/R arrival.
2. The SFO Roundtable urges the consistent use of effective noise abatement procedures such as the long-standing TRACON nighttime noise abatement procedure for aircraft taking off from Runway 10, to fly an approximate 330° heading up the Bay and thence out the Golden Gate.
3. The Roundtable will work with the FAA to re-design the SAHEY departure to mirror historic flight tracks that keep aircraft over the bay.

**REQUESTED FAA RESEARCH:**

- There is no additional research requested.

<b>PROCEDURE:</b> NIGHTTIME OFFLOADS/ROUTES	<b>ADJUSTMENTS:</b> 3.d.i.
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**DESCRIPTION:** Flights that take-off and land at SFO and OAK during the nighttime hours significantly impact hundreds of thousands of residents in San Francisco and San Mateo counties. Widespread resident reports indicate that their health is being seriously compromised due to aircraft noise causing continual sleep deprivation. The Roundtable believes that because of the serious impact on residents' health, the FAA should take extraordinary steps to decrease aircraft noise at night – including additional miles flown by aircraft.

Many of the nighttime hours are also a time of increased flexibility for ATC due to significantly fewer flight operations and a curfew at Mineta San Jose International Airport beginning at 11:30 pm. These factors allow ATC to increase the use of already existing noise abatement nighttime procedures as well as to consider the possibility of adopting additional noise abatement nighttime procedures.

Nighttime hours are generally stated to be 10:00 pm-7:00 am. (CNEL, SFO Noise Abatement website, TRACON SOP), although the SFO Noise Abatement Office also highlights the hours of 1:00 am - 6:00 am for desired voluntary use of the preferential runway use.

The ability of ATC to utilize alternative nighttime procedures is not tied to the hands on a clock, but rather relies on the decreased number of flights being operated during nighttime hours. Thus, if weather delays cause originally scheduled evening flights to have their takeoff delayed into the nighttime hours, some nighttime quieter procedures cannot be used until later in the nighttime when flight operations actually decrease.

Several noise abatement departures have been published (NIITE & HUSSH departures for SFO and OAK flights to the north, west and east), SFO Runway 28 take-offs with an immediate right turn by the Bay (TRUKN – formerly Shoreline).

In addition, NORCAL TRACON makes use of additional important nighttime hours' procedures (SFO Runway 1L/R southbound with an initial 050° heading; OAK Runway 30 southbound with an initial ~130° heading; SFO Runway 10L/R Opposite Direction Operations take-off procedure; Runway 28R single stream approaches only; noise abatement approaches to Runway 28R (FMS Bridge Visual, Quiet Bridge Visual, RNAV (RNP) 28R.)

However, there are still flight paths which cause significant noise impact to families in the middle of the night: SSTIK & CNDEL for southbound flights, BDEGA and other arrivals from the north using the **west** downwind, Oceanic arrivals over Woodside to MENLO, 28L approaches over Foster City, SERFR and other arrivals from the south to MENLO.

**EXECUTIVE SUMMARY:** BDEGA 7, SERFR 9, BDEGA West 10, RWY 28 Approach 14, MENLO 17, NIITE/HUUSH 19, 20, 21, 23, 050 Heading 24, Rwy 28 Straight Out 26, 27

**PRIMARILY IMPACTED CITIES:** San Francisco and the cities in San Mateo County.

**NOISE ISSUES:** Aircraft fly the Oceanic arrivals during periods of low traffic volumes, typically at night, during late night and early morning hours. The areas in the south peninsula overflown by these procedures are located on large, wooded lots that have low ambient noise levels similar to what can be found in a national park setting. There are also peaks in the area that rise to 2,000' MSL, including the area around the Woodside VOR that is populated. In the early morning and late night hours, aircraft noise is especially prevalent given the low ambient noise levels that can be extremely disruptive to sleep. Although the total number of nighttime flights may not seem high, the impact of these overflights throughout the night is devastating to the residents. As an example, on July 19, 2016, between the hours of 4:33 am and 6:53 am, there were seven flights from the Hawaiian Islands that flew over this area as close as 10 minutes apart as shown below:

- UAL 1557      landed at 4:26am
- UAL 396        landed at 4:33am
- UAL 1746      landed at 4:43am
- UAL 1724      landed at 5:03am
- VIR 48         landed at 5:40am
- UAL 1580      landed at 6:05am
- UAL 1575      landed at 6:53am

#### **SFO ROUNDTABLE REQUESTS**

##### **Short Term:**

During the **nighttime hours ONLY**, the Roundtable requests:

1. **NIITE/HUSSH transition for southbound flights:** While awaiting the publication of this NIITE southbound transition, it is requested that aircraft be vectored in according with long-standing NCT procedures (SFO 330° heading up the Bay) and (SFO and OAK) out to the ocean and southbound over the Pacific Ocean.) The SFO RT also supports the NCT use of the 050° heading for SFO southbound departures, however not increasing Runway 01 L/R utilization.
2. **NIITE from Runways 10:** While awaiting authorization to use NIITE departure from Runways 10, (or in the failure to obtain such authorization), the RT requests that aircraft be vectored to mirror the NIITE DP.

3. **NIITE/HUSSH transition for southbound flights:** While awaiting the publication of this southbound transition, determine if aircraft can file for SFO QUIET SEVEN departure or the OAK SILENT departure and then be vectored in accordance with NCT SOPs out to GOBBS waypoint and then southbound.
4. **050 Heading:** The RT supports the use the 050° heading from SFO and a comparable OAK Rwy 30 heading down the Bay at night. Runway 01 departures should not be increased; rather, use a 050 heading in lieu of flying a procedure over the peninsula for aircraft with southern departures.
5. **Runway 28R nighttime straight-out departures:** Determine if there is any ability to eliminate the 3,000' MSL altitude restriction.
6. **28L approaches over Foster City and north Peninsula:** The Roundtable requests that, all nighttime approaches be managed into a "single stream" of airplanes, that (wind/weather permitting) this single stream of planes only uses noise abatement approaches such as the Runway 28R FMS Bridge Visual, the Runway 28R Quiet Bridge, or the RNAV (RNP) 28R and that this single stream of planes landing only on Runway 28R. If conditions require an ILS approach, it is requested that only Runway 28R be used. Continuing to land on 28R, rather than sidestepping to 28L, can reduce noise to residents from approach thrust and reverse thrust after landing.
7. **Arrivals from the North:** The SFO Roundtable requests that BDEGA and other arrivals from the north be assigned only to the BDEGA East downwind (or similar) for a "noise-friendlier" approach to only 28R.
8. **ALL approaches:** The SFO RT requests that, when feasible, during nighttime hours and VMC conditions -- *if any flights fly over sensitive areas* -- every effort be made which would allow aircraft to **remain higher than typical** and are vectored so as to approach single stream using noise-friendlier approaches to land on Runway 28R.
  - If an arrival ***must*** be made over Woodside (Oceanic) or the Peninsula (BDEGA) or from the south (SERFR), every effort should be made to keep aircraft higher than typical. This excess altitude could be expeditiously dissipated by giving the aircraft a slightly longer path over the Bay before intercepting an appropriate noise-friendly visual approach to 28R. The amount of altitude increase over the sensitive land use areas will be related to the available additional distance flown to lose that altitude through whatever lateral path is flown. If the pilot can anticipate the plan, he/she would be prepared for an expeditious descent over the Bay prior to intercepting the typical FMS Bridge Visual or other noise friendlier approach.



### Longer Term:

1. **NIITE transition for southbound aircraft:** *This is FAA Initiative Feasible item 2.f.i.*: The SFO Roundtable supports an immediate start to designing the southbound transition for SFO and OAK flights on the NIITE departure. This NIITE departure/southbound transition procedure will replace the SSTIK and CNDEL departures during the nighttime hours.
2. **NIITE:** Determine if Runway 10 take-offs can be authorized to use the NIITE. If not, create a departure to allow Runway 10 take-offs to make a left turn up the Bay to NIITE waypoint.
3. **BDEGA Arrivals from the North:** The SFO Roundtable requests reinstatement of the FINSH transition to the BDEGA arrival in order to facilitate increased use of the BDEGA East downwind (“down the Bay”) to Runway 28R or the establishment of a similar east downwind transition if there are technical concerns with the original design.
4. **Oceanic:** The SFO RT will work with airline representatives and the FAA to request that all nighttime arrivals from the north file for and fly an approach which utilizes the Bay (such as the BDEGA East downwind) and substantially avoids flight over non-compatible land uses.
5. **SERFR:** The SFO RT will work with airline representatives and the FAA to request that all nighttime arrivals from the south (SERFR) file for a routing and Arrival that would terminate east of the Bay for connection to an approach to SFO Runway 28R.
6. **Nighttime Arrivals:** The SFO Roundtable will work with airline representatives to encourage them to file for SFO arrivals that avoid flight over sensitive areas. If inbound aircraft choose to file for BDEGA, it is requested that only the BDEGA East downwind be assigned to them.

### COLLABORATION:

1. The SFO Roundtable will provide any required community data as well as community input to the FAA to support all efforts to improve noise impacts during the important night time hours.

### REQUESTED INITIAL FAA RESEARCH:

- There is no additional research requested.

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<b>PROCEDURE:</b> CNDEL	<b>ADJUSTMENTS:</b> 1.a.ii, 1.b.ii, 2.a.ii(b)
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*CNDEL Departure Flight Tracks*

**DESCRIPTION:** The CNDEL RNAV departure is typically used by aircraft departing Runway 30 at Oakland International Airport (OAK). After takeoff, the aircraft flies north a short distance over the Bay, then flies over the LEJAY and CNDEL waypoints, west of the USS Hornet and the old naval air station Alameda, respectively. After the CNDEL waypoint, the CNDEL departure procedure directs the aircraft to turn left to the PORTE waypoint located just south of Half Moon Bay airport.

For southbound destinations, aircraft will often be vectored prior to the CNDEL waypoint, at the LEJAY waypoint. *FAA Initiative Phase 1, Appendix B* notes that 46% of CNDEL departures are on the procedure; this assumes 54% of aircraft flying the CNDEL departure are vectored. Many of these flights turn south or southwest over the Bay or towards southern portions of the City of San Francisco and cities in northern San Mateo County. Often, this vectoring places CNDEL and SSTIK flights in a position to compete for the same airspace.

Occasionally aircraft will fly over the Golden Gate Bridge, then turn to the south. Also, aircraft will occasionally be vectored over the SFO VOR navigational aid on the airport, then over Millbrae and Burlingame towards the PORTE waypoint or waypoints downstream on their flight plan.

This procedure replaced the conventional navigation SKYLINE and COAST departures.

## **EXECUTIVE OUTLINE: CNDEL 29 – 33**

**PRIMARILY IMPACTED CITIES:** Brisbane, Burlingame, Daly City, Millbrae, Pacifica, San Bruno, San Francisco, South San Francisco.

**NOISE ISSUES:** The San Francisco Bay area is an area rich in diverse topography. This impacts how cities under the departure path experience aircraft noise; there are numerous ridges and peaks leading to valleys that experience aircraft noise differently than if it was all flat land. Between aircraft crossing the peninsula from the Bay to the ocean, San Bruno Mountain State Park amplifies noise impacts for Brisbane, due to its elevation relative to the City of Brisbane. For cities closer to the coast, the topography of the coastal range, including Milagra and Sweeny ridges, amplifies noise impacts for Pacifica residents from aircraft flying toward the PORTE waypoint. Planes flying at low altitudes negatively affect all impacted cities.

## **SFO ROUNDTABLE REQUESTS**

As stated earlier, this procedure should be flown as charted and reduce the number of aircraft vectored. Based on a month of data from July 2015, *FAA Initiative Phase 1, Appendix B* notes that 46% of CNDEL departures are on the procedure; this assumes 54% of aircraft flying the CNDEL departure are vectored.

### **Short Term**

1. In the existing procedure, fly the planes on the charted CNDEL departure as published so that they fly over the CNDEL flyover waypoint THEN over the PORTE waypoint as charted. This reduces conflicts with SSTIK coming from SFO and reduces vectoring of both procedures, allowing SSTIK to utilize the Bay to gain altitude before flying over populated areas.
2. Use the Bay and Pacific Ocean for overflight as much as possible. From the CNDEL waypoint, direct aircraft to a waypoint in the Pacific Ocean – potentially to the GOBBS waypoint in the ocean then to the WAMMY waypoint.
3. Use the GOBBS waypoint during nighttime hours to reduce overflights of the Peninsula - (HUSSH departure).
4. In the existing procedure, avoid vectoring aircraft for non-safety reasons prior to the CNDEL waypoint.
5. The SFO RT requests that the assignment of southbound vectors be delayed until the aircraft has reached the ocean and PORTE waypoint to reduce aircraft flying over San Francisco and down the Peninsula. Avoid vectoring aircraft over San Francisco and over the Peninsula direct to waypoints beyond PORTE.

## **Longer Term**

1. Determine if the actual flight tracks of aircraft after CNDEL waypoint could be “contained” to a more limited area such as west of the eastern shore of the Bay (perhaps by an additional waypoint) that would decrease potential conflicts with the SSTIK departure airspace to enable the SSTIK departure to be flown as published.
2. The SFO Roundtable requests that the FAA determine if a southbound transition for the CNDEL procedure could effectively use flight over bodies of water to enable aircraft to gain altitude before flying over noise-sensitive land uses without interfering with a possible expanded SSTIK departure path or shifting noise to other communities.
3. Utilizing the OAK HUSSH departure procedure during daytime hours should help avoid conflicts with SFO SSTIK, reduce the need for vectoring, increase the separation between these flight paths, and increase safety. From the CNDEL waypoint, direct aircraft to a waypoint in the Pacific Ocean – potentially to the GOBBS waypoint, then to WAMMY, before flying to PORTE. This would be the preferred long term solution as it would greatly reduce negative noise impacts because planes would be flying over water, rather than directly over people’s homes.

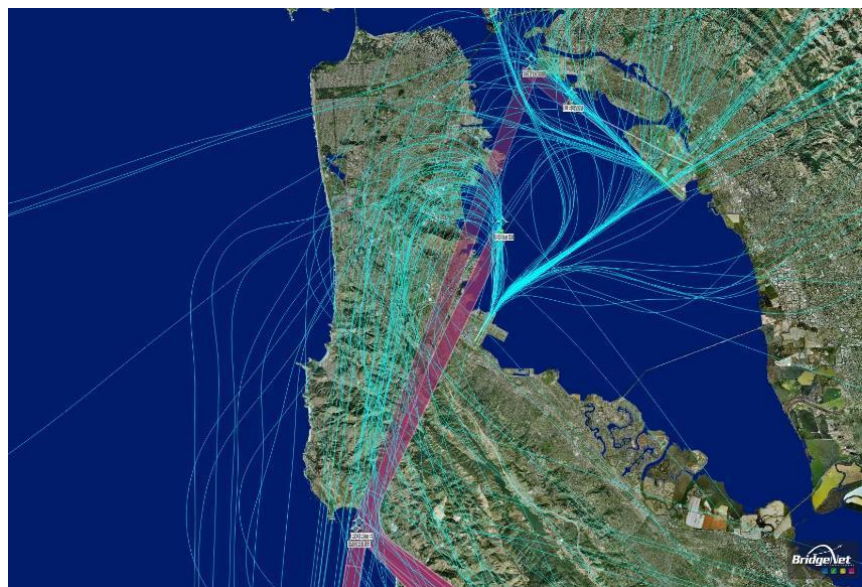
## **COLLABORATION:**

1. The Roundtable is available to provide community input to the FAA with the use of modeling or other tools to determine the effects of other noise friendlier departure paths for flights using the OAK CNDEL departure, especially for CNDEL southbound flights. Such options might include (but are not limited to) flight over the waters of the Bay to the Pacific Ocean or flight over the Bay to SFO and then over the Peninsula (primarily Millbrae and Burlingame) to PORTE or flight down the Bay as far south as feasible, or other options that may become known.

## **REQUESTED INITIAL FAA RESEARCH:**

- There is no additional research requested.

<b>PROCEDURE:</b> SSTIK	<b>ADJUSTMENTS:</b> 1.a.ii, 1.b.i, 1.b.ii, 1.b.iii, 2.a.ii(b)
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SSTIK  
Departure, SFO and CNDEL Departures, OAK

**DESCRIPTION:** The SSTIK RNAV departure is used by aircraft departing SFO Runways 1L and 1R. After takeoff, the aircraft flies north a short distance over the Bay, then flies over the SSTIK waypoint, located east of the City of Brisbane marina. For southbound destinations, after SSTIK, the aircraft then typically makes a left turn to head south to the PORTE waypoint, located just south of the Half Moon Bay airport.

This procedure replaced the conventional navigation PORTE departure. The new SSTIK waypoint is located approximately 1 nautical mile south of the SEPDY waypoint that is associated with the PORTE procedure; SEPDY is located east of the Baylands Soil Processing facilities. The SSTIK waypoint is closer to downtown Brisbane than SEPDY.

**EXECUTIVE OUTLINE:** SSTIK 34 – 38

**PRIMARILY IMPACTED CITIES:** Brisbane, Daly City, Pacifica, San Bruno, San Francisco, South San Francisco as well as Millbrae, Burlingame and other Peninsula cities.

**NOISE ISSUES:** The San Francisco Bay area is an area rich in diverse topography. The topography of San Bruno Mountain State Park amplifies noise impacts for Brisbane, due to its elevation relative to the City of Brisbane, and from low flying planes that are vectored. Similarly, topography of the coastal range, including Milagra and

Sweeny ridges, amplifies noise impacts for Pacifica residents from aircraft flying toward the PORTE waypoint. Planes flying at low altitudes negatively affect all impacted cities.

## **SFO ROUNDTABLE REQUESTS:**

### **Short Term**

Improved utilization of existing flight path and procedures:

1. Avoid issuing any non-safety vectors to aircraft for as long as feasible and no earlier than when an aircraft is actually over the SEPDY flyover waypoint. Early vectors cause dramatically increased noise to residents below these vectored turns. After reaching the designated waypoint or intersection, continued flight up the Bay (to attain higher altitude) is desirable. When a left turn is to be made, a relatively wide dispersal of flight paths to the ocean is preferred.
2. Flights should be directed to fly as high as possible over the SEPDY waypoint (over the bay), allowing them to be higher in altitude before turning over land, with a steady altitude increasing as they make their way to the ocean.
3. Avoid vectoring aircraft down the Peninsula direct to waypoints beyond PORTE. Aircraft should fly over the PORTE waypoint on the published procedure.
4. In the existing procedure, use the Bay and ocean for overflight as much as possible.
5. In the existing procedure, utilize existing areas of compatible land use for overflight.
6. For aircraft with destinations in Southern California including Long Beach Airport, John Wayne Airport, San Diego International Airport, Santa Barbara Airport and Mexican airspace, use the OFFSHORE ONE departure. This departure has been an historic procedure that guides aircraft to the ocean to the WAMMY waypoint instead of down the peninsula. A relatively wide dispersal of flight paths after the turn to the ocean is preferred.
7. For aircraft with southeast destinations including Phoenix Sky Harbor International Airport and McCarran International Airport in Las Vegas, use the TRUKN departure with a transition at TIPRE or SYRAH. This is consistent with the legacy procedure of using the SFO departure procedure where aircraft were vectored eastbound to the LINDEN VORTAC, a ground-based navigational aid.
8. The Roundtable understands the additional complexities added to air traffic controllers by depicting city locations or densely populated areas on radar displays. However, the Roundtable would like to determine the feasibility of

depicting the SEPDY waypoint on the scopes in an effort for aircraft to stay over the Bay as long as possible. This would allow aircraft additional time to climb over the Bay before turning.

### **Longer Term**

1. SSTIK: Determine if a reduced climb airspeed can be assigned until reaching 3,000' MSL or other higher altitude; a slower airspeed will allow the aircraft to climb to a higher altitude in a shorter distance before overflying noise-sensitive land uses. Determine if the minimum required altitude for ATC to initiate a left turn can be raised.
2. Move the SSTIK waypoint north and east as much as feasible to allow maximum altitude gain before turning west to fly over land, using the legacy SEPDY waypoint as a guide. Remain over the Pacific Ocean until attaining a high altitude.
3. Create an OFFSHORE RNAV overlay. An RNAV overlay of the OFFSHORE departure would create a NextGen procedure that can utilize long-standing waypoints in the ocean that are offshore, including waypoints that have historically been over the water. Using these procedure waypoints as a guide, establish RNAV waypoints consistent or west of WAMMY and SEGUL. A relatively wide dispersal of flight paths after the turn to the ocean is preferred.
4. Create a SSTIK transition to GOBBS. Similar to the NIITE procedure, aircraft would depart on the SSTIK procedure flying up the Bay instead of over the peninsula to approximately the GOBBS intersection, then onto a waypoint in the ocean such as WAMMY. This could be used for aircraft with southerly destinations in California. This would be the preferred long term solution as it would greatly reduce negative noise impacts because planes would be flying over water, rather than directly over people's homes.

### **COLLABORATION:**

1. The SFO Roundtable will provide community input to the FAA to find an appropriate location for moving the SSTIK waypoint east and north of its current location, again using SEPDY as a guide, so planes can fly over the Bay for a longer period of time, and thus increase altitude before heading west and flying over residential areas.
2. Request the FAA provide modeling, noise monitoring, and/or other tools to determine the effects of different waypoint options.



3. The SFO Roundtable requests the FAA to allow planes to fly the charted procedures and to reduce vectoring and when safety is not an issue as well as to use higher altitudes when flying over noise-sensitive land uses and the use of non-residential areas where feasible.
4. The SFO Roundtable will work with the SFO noise office and TRACON to research use of the legacy LINDEN VORTAC transition to determine why it has not been used within the last few years and determine which city pairs can utilize this corridor via TIPRE or SYRAH.

**REQUESTED INITIAL FAA RESEARCH:**

1. FAA is requested to determine any conflicting airspace issues which would not be available for the location of a new SSTIK waypoint.



## ATTACHMENT D

### SFO ROUNDTABLE RESPONSE TO FAA FEASIBILITY REPORT

#### Adjustment - 1.a.i.(a) (Altitude)– Not Feasible

*Description:* Evaluate raising altitude at MENLO waypoint to 5,000’.

*Roundtable Response:* This Adjustment contains two items: increasing the altitude at MENLO and establishing a new waypoint. Based on instrument procedure design, the Roundtable understands the altitude at MENLO must remain at the current altitudes. The SFO Aircraft Noise Abatement (ANAO) Office and Northern California TRACON have an agreement that states when able, aircraft will cross the MENLO intersection during visual conditions at 5,000’ AGL and 4,000’ AGL during instrument conditions. The Roundtable requests this agreement stays in place and aircraft cross MENLO at or close to 5,000’ AGL during visual conditions. The Roundtable also recommends the creation of an RNAV visual approach to mirror the TIPP TOE Visual approach for 28L which would specify crossing MENLO at 5,000-feet.

#### Adjustment - 1.a.ii. (Altitude) – Feasible

*Description:* Analyze reducing impacts of SSTIK, WESLA, and CNDLE departures.

*Roundtable Response:* This Adjustment contains language regarding three separate procedures.

1. SSTIK – The Roundtable advocates for SSTIK to be flown to the SEPDY waypoint and vectored for safety purposes only, prior to the waypoint. While awaiting the development of an OFFSHORE ONE RNAV overlay, NCT is requested to use the OFFSHORE departure procedure for flights to Southern California. Planes should be directed to fly as high as possible over the SEPDY waypoint (over the Bay), allowing them to be higher in altitude before turning over land, with a steady altitude increase and relatively wide dispersal of flight paths as they make their way to the ocean. The Roundtable requests the FAA to research other possible flight alternatives utilizing the Bay and Pacific Ocean.
2. WESLA – This procedure should be flown as charted and allow aircraft to climb unrestricted when there are no other air traffic conflicts.
3. CNDLE – The Roundtable advocates for CNDLE to be flown as charted and vectored for safety purposes only, not for efficiency. The Roundtable would request the FAA to research other possible lateral path options for the CNDLE southbound departures.

Additional information regarding the SSTIK and CNDLE can be found in Attachment B.

#### Adjustment - 1.b.i. (Track) – Feasible

*Description:* Analyze moving the SSTIK and PORTE departures more over water.

*Roundtable Response:* There are two procedures in this Adjustment; the majority of aircraft fly the SSTIK departure, therefore the comments will focus on that procedure. Keeping aircraft over compatible land uses (such as the Bay, Pacific Ocean, and non-residential areas) as much as possible is key to noise abatement. For SSTIK, there are two bodies of water to use for aircraft

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operations; on immediate departure, the San Francisco Bay and later in the Pacific Ocean for points between the existing SSTIK and PORTE waypoints. The Roundtable advocates utilizing water as much as possible for the SSTIK procedure to:

- Fly over the Bay until the SSTIK waypoint, by moving SSTIK N + E as much as feasible to allow maximum altitude gain before turning to fly over land using the historic SEPDY waypoint as a guide. Preferably, the SSTIK should be flown to GOBBS, then to WAMMY, before flying to PORTE, so that planes are flying over water, rather than people's homes.
- Fly the procedure as charted to PORTE waypoint instead of clearing aircraft to subsequent waypoints downstream from SSTIK, bypassing PORTE. Aircraft bypassing the PORTE waypoint lead to aircraft overflying larger portions of San Mateo County instead of the ocean. Create an additional waypoint over the ocean to guide aircraft over the water to PORTE, such as the legacy WAMMY waypoint associated with the OFFSHORE procedure.
- Fly the CNDEL to the CNDEL waypoint as charted, so as to create less interference with SSTIK. Preferably, the CNDEL should be flown to GOBBS, so as to maximize the airspace for which to create a new SSTIK waypoint as far north and east of SEPDY. The CNDEL should be flown to GOBBS, then to WAMMY, before flying to PORTE, so that planes are flying over water, rather than people's homes.
- Since the publication of the *Initiative*, the PORTE departure procedure has been decommissioned, however; the PORTE waypoint is still part of the National Airspace System, used by many departure procedures.

Additional information regarding this Response can be found in Attachment B.

### Adjustment - 1.b.ii. (Track) – Feasible

*Description:* Analyze reducing the impacts of SSTIK, WESLA, and CNDLE departures.

*Roundtable Response:* There are three procedures in this Adjustment.

1. SSTIK – This Adjustment addresses the track of the procedure. The comments in this Adjustment relate specifically to the existing track and options for procedure modifications. The SSTIK procedure can be dissected into parts, or segments, to look at how to solve the overall issues by focusing on how the procedure flies: over the Bay, the peninsula, and the ocean. The FAA Initiative Phase 1 shows that 99% of aircraft are compliant with the SSTIK procedure, turning within 1 nautical mile of the initial waypoint that was designed to RNAV-1 standards. While technically this is accurate, the further aircraft are turned before the center of the waypoint, the lower they are over the peninsula. Aircraft turned before the center of the waypoint then compound the noise issue when cleared to waypoints downstream from PORTE.
2. With regard to the existing procedure, the SFO Roundtable requests:
  - a. That southerly vectors not be issued to an aircraft until an aircraft is actually over SEPDY (avoid anticipatory turns approaching SEPDY). Once past SEPDY, a relatively wide dispersal of flight paths to the ocean is preferred.
  - b. That the Bay, and waypoints such as GOBBS and WAMMY in the ocean be used for overflight as much as possible.
  - c. That existing areas of non-residential land be used for overflight.
  - d. That assigning a southbound heading toward PORTE should be delayed as long as

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feasible **including flying to the ocean before turning south.**

- e. That vectoring aircraft down the Peninsula direct to **PORTE and to** waypoints beyond PORTE should be avoided.

With regard to the longer term, the Roundtable would propose to move SSTIK north and east as much as feasible to allow maximum altitude gain before turning to fly over land using the historic SEPDY waypoint as a guide. The Roundtable would ultimately prefer a SSTIK procedure that utilizes the entire Bay out to GOBBS, then to WAMMY and then to PORTE.WESLA – This procedure should be flown as charted and allow aircraft to climb unrestricted when there are no other air traffic conflicts.

3. CNDLE - This procedure should be flown as charted and reduce the amount of aircraft vectored. FAA Initiative Phase 1, Appendix B notes that 46% of CNDLE departures are on the procedure; this assumes 54% of aircraft flying the CNDLE departure are vectored. The Roundtable requests that CNDEL departures be allowed to fly the procedure to PORTE intersection unless safety (not efficiency) requires vectoring earlier.
4. The Roundtable requests the FAA to use this as a baseline to compare conditions in the future when reporting back to this body regarding decreasing vector traffic. As with Adjustment 1.a.ii., the Roundtable requests the FAA research various options as alternate lateral paths for CNDEL southbound departures.

Utilizing the HUSSH departure procedure during daytime hours should help avoid conflicts with SSTIK, reduce the need for vectoring, increase separation between these flight paths, and increase safety. The Roundtable would ultimately prefer a CNDEL procedure that utilizes the entire bay out to GOBBS, then to WAMMY and then to PORTE. Additional information regarding the SSTIK and the CNDEL can be found in Attachment B.

Adjustment - 1.b.iii. (Track) – Not Feasible

*Description:* Analyze moving the ILS/Visual Approach to RWY 28L offshore.

*Roundtable Response:* The Roundtable understands the limitations of an offset to RWY 28L interfering with operations on RWY 28R. This Adjustment is an example of an operational issue that can use controller and pilot outreach to help with noise issues; it is understood that the need for side-by-side operations has increased and with the changes in wake re-categorization, aircraft delays at SFO are at times cut in half due to this type of operation. As part of the outreach, the Roundtable requests the following:

- a. Work with SFO Noise Abatement Office on a pilot outreach program to encourage aircraft to stay over water while on approach after receiving their cleared to land instructions.
- b. Work with Northern California TRACON (NCT) to increase controller awareness on keeping aircraft over water as much as possible, especially during late night hours and when aircraft are operating in single-stream and using RWY 28R. Additionally, we would like assurances from the FAA, to the maximum extent possible, not turn aircraft over affected communities prior to nine miles from the SFO VOR (9 DME) final from the airport, consistent with the NCT informal noise abatement agreement.
- c. Determine the feasibility of creating an RNAV (RNP) dual offset approach to Runway 28R and 28L.

Adjustment - 1.b.iv. (Track) – Not Feasible

*Description:* Analyze offsetting Visual Approaches until passing San Mateo Bridge.

*Roundtable Response:* The Roundtable understands the limitations of aircraft conducting a stabilized approach and needing to be set up on a final approach outside of the San Mateo Bridge. This Adjustment is an example of an operational issue that can use controller and pilot outreach to help with noise issues.

As part of the outreach, the Roundtable requests the following:

- a. Work with SFO Noise Abatement Office on a pilot outreach program to encourage aircraft to stay over water while on approach after receiving their cleared to land instructions.
- b. Work with Northern California TRACON (NCT) to increase controller awareness on keeping aircraft over water as much as possible, especially during late night hours and when aircraft are operating in single-stream and using RWY 28R.

Adjustment - 1.b.v. (Track) – Not Feasible

*Description:* Analyze the impact of non-charted visual approaches to RWY 28.

*Roundtable Response:* The Roundtable understands the limitations of aircraft conducting a stabilized approach and needing to be set up on a final approach outside of the San Mateo Bridge. This Adjustment is an example of an operational issue that can use controller and pilot outreach to help with noise issues.

As part of the outreach, the Roundtable requests the following:

- a. Work with SFO Noise Abatement Office on a pilot outreach program to encourage aircraft to stay over water while on approach after receiving “cleared to land” instructions.
- b. Work with NCT to educate controllers on keeping aircraft over water as much as possible, especially during late night hours and when aircraft are operating in single-stream.

Adjustment - 1.c.ii. (Waypoint) – Feasible

*Description:* Analyze making adjustments to PORTE departure to maximize offshore routing.

*Roundtable Response:* The majority of aircraft that depart Runway 01L fly a SSTIK departure procedure; the comments relating to Adjustment 1.c.ii. are the same the Roundtable comments on Adjustments 1.a.ii, 1.b.i, and 1.b.ii. with emphasis on the comments for Adjustments 1.a.ii and 1.b.i.

Adjustment - 1.f.ii. (PBN Procedures) – Not Feasible

*Description:* Evaluate the effect of dispersing flight tracks over a wider range.

*Roundtable Response:* The Roundtable understands that vectoring is often used to compensate for high flight volumes at SFO and to avoid long delays on the ground. The Roundtable requests to work with the FAA to determine where aircraft can be vectored with the least noise impact and identify locations that have the most compatible land uses for vectoring purposes.

Adjustment - 1.f.iii. (PBN Procedures) – Feasible

*Description:* Study the feasibility of creating new transitions for the NIITE departure for airports to

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southbound destinations.

*Roundtable Response:* The Roundtable supports FAA's efforts to create a noise abatement procedure for nighttime flights that will keep aircraft over compatible land uses, specifically the Bay and ocean, instead of the peninsula. We request a timeline from the FAA for implementation of this procedure, factoring in requirements to run the procedure through the FAA Order JO 7100.41A process.

Additional information regarding a new southbound transition for the NIITE departure can be found in Attachment B.

### Adjustment - 1.f.iv. (PBN Procedures) – Not Feasible

*Description:* Study the possibility of new SFO RNP approaches which will serve RWYs 28 L/R and follow the BSR ground track, curved out over the Bay crossing MENLO at 5,000 -6,000 feet.

*Roundtable Response:* There are two issues in this Adjustment, creating an RNP approach to Runways 28 L/R and crossing MENLO at 5,000- 6,000 feet. The altitude at MENLO is discussed in 1.a.i.(a). For procedural adjustments, the Roundtable would like Oakland Center and NCT to encourage use of the RNAV (RNP) Y procedure to Runway 28R or the FMS Visual 28R to keep aircraft over the water for as long as possible. The Roundtable suggests the following outreach:

- a. Work with NCT to educate controllers on keeping aircraft over water as long as possible on approach, especially during single-stream operations.
- b. Work with the SFO ANAO to educate pilots on the ability to request the RNP to Runway 28R or the FMS Visual 28R, given the properly equipped aircraft and flight crew.

### Adjustment - 2.a.i. (Sequencing and Vector Points) – Not Feasible

*Description:* Analyze adjusting air traffic activity in the vicinity of Woodside VOR including altitudes.

*Roundtable Response:* Aircraft activity over the Woodside VORTAC includes aircraft arrivals from numerous origin points, not just oceanic arrivals. The Initiative addressed one portion of the flights which utilize the Ocean Tailored Approach, accounting for less than 4% of SFO's traffic. The majority of traffic in this area of southern San Mateo County are 1) vectored flights from southern arrivals on BIG SUR THREE and SERFR TWO STARs and 2) vectored flights from northern arrivals on numerous STARs including but not limited to the GOLDEN GATE SEVEN, POINT REYES TWO, and BDEGA TWO. Aircraft on STARs from northern origin cities fly down the peninsula, turning back towards the airport over towns and cities in southern San Mateo County over populated terrain that rises to 2,000' mean sea level. Aircraft on arrival from southern origin cities are vectored for traffic over this same geographic area. The Roundtable requests:

- a. The FAA determine the ability of more aircraft to utilize the Bay for arrivals from points north instead of the peninsula. This is especially important during nighttime hours; nighttime as defined by the CFR Part 150 is 10 pm – 7 am. Between the hours of 10 pm – 7 am, we would like 100% of the arrivals to use the Bay,
- b. The BDEGA TWO procedure include the waypoints for a down the Bay procedure, as done in BDEGA ONE, and
- c. The FAA determine altitudes to turn aircraft for vector purposes that minimizes noise.

Additional information regarding the Woodside VOR can be found in Attachment B.

### Adjustment - 2.a.ii.(a) (Sequencing and Vector Points) – Feasible

*Description:* Analyze adjusting air traffic to eliminate early turns over land. Focus on leaving aircraft

over water as long as possible.

*Roundtable Response:* This Adjustment contains references to numerous procedures, which will be addressed in order.

1. NIITE – when aircraft remain on the NIITE procedure, they represent an excellent use of an RNAV-based procedure that places aircraft over the intended waypoints, over a compatible land use (such as the Bay, Pacific Ocean, and non-residential areas), on a consistent basis. We are encouraged by the use of the NIITE procedure with a goal of 100% use from midnight to 6am and infrequent use during other nighttime hours.
2. HUSSH – the HUSSH is an OAK-based procedure. While these flights do not fly over San Francisco or the peninsula, we continue to encourage its use and reduce vectors off of the HUSSH departure for the same reasons as the NIITE.
3. FOGGG – this procedure is used on runways not commonly used, RWY 10L/R and RWY 19L/R. When weather conditions dictate the use of these runways, we encourage the use of FOGGG as published and not vector off the procedure.
4. GNNRR – the GNNRR TWO departure is a replacement for the legacy GAP SEVEN departure, flying runway heading from RWY 28L/R. The Roundtable has been the voice for San Mateo County for the past 35 years; in that time, aircraft departing out “the gap” have not been identified as flying a noise abatement procedure. During nighttime periods, it is not the preferential departure runway due to its overflight of thousands of residents in multiple communities that vary in elevation. The Roundtable requests:
  - a. The FAA remove GNNRR TWO in references to flying aircraft over less noise-sensitive areas and the associated inclusion in procedures used over less noise-sensitive areas that total 88%, as noted in this Adjustment, 3<sup>rd</sup> bullet.
  - b. When available, use the GAP SEVEN departure to avoid any top altitude restrictions for aircraft departing Runway 28L/R out the gap.

Adjustment - 2.a.ii.(b) (Sequencing and Vector Points) – Feasible

*Description:* Analyze adjusting air traffic to eliminate early turns over land. Keep aircraft on the SSTIK departure until the SSTIK waypoint before turning.

*Roundtable Response:* This Adjustment contains reference to three procedures; the comments will address each procedure in order.

1. The SSTIK procedure is a replacement for the legacy PORTE procedure; with the new procedure came a new waypoint for aircraft to make their initial procedure turn. As with many cities within San Mateo County, cities underneath the SSTIK waypoint contain topographic features that can heighten noise from aircraft operations, unlike flying over flat land. When aircraft are turned before the waypoint, they are turning over the peninsula while simultaneously continuing their climb, increasing the noise to communities along its path. Early turns that are cleared to waypoints beyond PORTE add to the aircraft noise profile along the peninsula.

In keeping with comments regarding SSTIK operations in Adjustment 1.a.ii., 1.b.i., and 1.b.ii, the SSTIK procedure can be dissected into segments to increase use of compatible land uses (such as the Bay, Pacific Ocean, and non-residential areas) along the entire route. The goal is to increase the amount of wings-level flight over the peninsula to reduce the effect of aircraft climbing and turning over populated areas, letting aircraft gain altitude in a wings level configuration and to minimize their flight path over populated land before starting a turn to the south over the ocean.

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The Roundtable requests:

- a. Aircraft use compatible land uses (such as the Bay, Pacific Ocean, and non-residential areas) for as long as possible before turning. For the SSTIK procedure, this would be using the Bay to gain altitude before turning over populated areas.
  - b. Define the airspace limitations to the north and east for placement of a waypoint to replace SSTIK. Present these limitations to the Roundtable in graphic and memo formats.
  - c. Define the airspace limitations over the Golden Gate and the ocean to the west of the peninsula for placement of a waypoint to replace or augment PORTE. Present these limitations to the Roundtable in graphic and memo formats.
2. The Roundtable requests aircraft remain on the WESLA procedure, as charted.
  3. While the CNDLE procedure is for OAK departures, the CNDLE and SSTIK share the PORTE waypoint. Aircraft flying the CNDLE departure overfly numerous areas of the City of San Francisco and northern San Mateo County. As requested in Adjustment 1.b.ii., *FAA Initiative Phase 1, Appendix B* notes that 46% of CNDLE departures are on the procedure; this assumes 54% of aircraft flying the CNDLE departure are vectored. The Roundtable requests the FAA to use this as a baseline to compare improvements in decreasing vector traffic.

### Adjustment - 2.a.ii.(c) (Sequencing and Vector Points) – Feasible

*Description:* Analyze adjusting air traffic to eliminate early turns over land. Keep aircraft on the NIITE departure to at least the NIITE waypoint as much as possible.

*Roundtable Response:* The Roundtable comments for Adjustment 2.a.ii.(a) apply to this Adjustment; we are encouraged by the use of the NIITE procedure.

### Adjustment - 2.e.i. (RWY Usage) – Not Feasible

*Description:* Study the feasibility of increasing the use of RWY 10.

*Roundtable Response:* RWY 10L/R has historically been the nighttime preferential runway for noise abatement, especially for wide body aircraft that are travelling to destinations in Asia. This Adjustment references the increased use of RWY 10L/R in relation to weather conditions. The Roundtable understands due to weather conditions RWY 10L/R is unable to be used much of the time, however; the use of RWY 10L/R for portions of nighttime activity will be addressed in Adjustment 2.e.iii.

The Roundtable requests:

- a. When aircraft use the SAHEY THREE departure from Runway 10L/R, that aircraft are not vectored and fly the procedure as charted. At night when Runway 10L/R is used for noise abatement, it is critical that aircraft remain on the procedure so that they are not needlessly vectored at very low altitudes over densely populated areas.
- b. The FAA create an RNAV overlay, or create a new procedure, based on the decommissioned DUMBARTON EIGHT procedure for aircraft departures from Runway 10L/R to keep aircraft over the Bay.

Additional information regarding the Runway 10 departure and Opposite Direction Operations can be



found in the Attachment B.

Adjustment - 2.e.ii. (RWY Usage) – Feasible

*Description:* Study the feasibility of increasing the use of RWY 01 for departures, study the feasibility of proceduralizing the 050 departure heading off RWY 01 at night.

*Roundtable Response:* For daytime operations, RWY 01L/R are the preferential departure runways while RWY 28L/R are the preferred arrival runways. For nighttime operations, use of RWY 01L/R is the third preference of SFO's nighttime preferential runway use program. For departures using RWY 01L/R for departures during nighttime hours, the Roundtable requests aircraft with southern destinations use the 050 departure heading as much as possible to avoid overflights of the peninsula. The RT is not advocating for Runway 01L/R to be used more during nighttime hours.

Operationally, the Roundtable would like to use the 050 departure heading, NIITE, and new NIITE waypoint for south-bound departures to reduce nighttime overflights of the peninsula.

Adjustment - 2.e.iii. (RWY Usage) – Not Feasible

*Description:* Study the necessity of extending nighttime operations at SFO. According to the SFO Standard Operating Procedure, the preferred RWY for operations between 0100 and 0600 local time is departing RWY 10 and landing RWY 28.

*Roundtable Response:*

Since 1988, SFO has had in place a nighttime preferential runway use program<sup>1</sup>. The program defines nighttime hours the same as the FAA FAR Part 150 study as 10 pm – 7 am. During this time period, SFO defines the following preferred nighttime preferential runway procedures:

1. The primary goal of the program is to use Runways 10 L/R for takeoff because they offer departure routing over the San Francisco Bay which will reduce the noise impacts over the communities surrounding SFO.
2. When departures from Runways 10 L/R are not possible, the second preference would be to depart Runways 28 L/R on the Shoreline or Quiet Departure Procedures. Both of these procedures incorporate an immediate right turn after departure to avoid residential communities northwest of SFO. The Quiet DP is now the TRUKN TWO procedure that flies up the bay.
3. The third preference is to depart on Runways 01 L/R. While this procedure directs aircraft over the bay, jet blast from these departures affects communities south of SFO.

Over the past 35 years, the Roundtable has worked with the SFO Noise Abatement Office to ensure the nighttime preferential runway use program stayed in place and is used as much as possible between 10 pm – 7 am. Due to daytime delays and traffic volumes, the hours that the preferential runway use program can be used doesn't always span from 10 pm – 7 am. However, we strive to have this preferential nighttime runway use program used as much as possible when traffic allows.

The Roundtable requests:

1. Maximum use of SFO's preferred nighttime preferential runway procedures, including using the TRUKN (up the Bay) and NIITE as replacements for the SHORELINE and QUIET departures.
2. Create a RWY 10R procedure for aircraft to depart RWY 10R, then turn up the Bay to join

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<sup>1</sup> <http://www.flysfo.com/community-environment/noise-abatement/noise-abatement-procedures>

**Attachment D: SFO Roundtable Response to FAA Initiative Feasibility Report**

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the NIITE. Currently aircraft depart and turn to heading 330 to fly up the Bay via vector headings issues from NCT. This can be enhanced by creating an RNAV procedure that brings aircraft up the Bay to join the existing NIITE for destinations to the east or on a new NIITE waypoint over the Golden Gate Bridge.

Additional information regarding this Response can be found in Attachment B.

Adjustment - 2.e.iv. (RWY Usage) – Not Feasible

*Description:* When weather conditions permit, study the increase in use of the Shoreline 7 departure off RWY 28R or 28L.

*Roundtable Response:* As with previous Adjustments, the Roundtable's goal is to use compatible land uses as much as possible. For the SHORELINE SEVEN departure, and now the TRUKN departure, it is key for aircraft to stay east of Highway 101 for noise abatement. This provides residents of numerous densely populated cities with relief from aircraft overflights all times of the day, especially at night. When conditions permit and aircraft use the TRUKN departure off RWY 28L/R, the Roundtable requests the FAA conduct controller outreach to educate them about aircraft staying east of Highway 101.

Adjustment - 2.f.i. (Instrument Flight Procedures IFP) – Feasible

*Description:* Study the feasibility of creating new transitions for the NIITE departure for departures to southbound destinations.

*Roundtable Response:* See Roundtable response to Adjustment 1.f.iii. and more information in Attachment B.

Adjustment - 2.f.ii. (Instrument Flight Procedures IFP) – Not Feasible

*Description:* When weather operations permits, study the use of the Shoreline 7 departure off of RWY 28R or 28L.

*Roundtable Response:* See Roundtable response to Adjustment 2.e.iv.

Adjustment - 2.f.iii. (Instrument Flight Procedures IFP) – Not Feasible

*Description:* Study the use of offset visual approaches in lieu of straight in visual approaches.

*Roundtable Response:* See Roundtable response to Adjustments 1.b.iii., 1.b.iv., and 1.b.v. and Attachment B.

Adjustment - 2.f.iv. (Instrument Flight Procedures IFP) – Not Feasible

*Description:* Study the usage of the GAP departure.

*Roundtable Response:* Aircraft departing on GNNRR are many times fully-loaded wide-body aircraft traveling to Europe or Asia. These operations fly over numerous cities that are densely populated. The Roundtable requests aircraft can climb unrestricted on this procedure. The Roundtable requests aircraft depart without a top altitude restriction when flying "out the gap" on Runway 28L/R and consider the use of the GAP 7 departure that has no top altitude restriction instead of the GNNRR

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departure.

Adjustment - 2.f.vi. (Instrument Flight Procedures IFP) – Not Feasible

*Description:* Study the feasibility of increasing the use of the SSTIK departure during the day and the NIITE departure at night.

*Roundtable Response:* As the Roundtable has requested in previous Adjustments, the SSTIK procedure should be flown as charted, especially flying to the PORTE waypoint instead of down the peninsula to points south of PORTE.

Adjustment - 2.g.i. (Opposite Direction Operations ODO) – Not Feasible – Not Applicable

*Description:* Review recent implementation of ODO procedures and their impacts in the San Francisco Bay Area.

*Roundtable Response:* See the Roundtable response in Adjustment 2.e.iii.

Adjustment - 2.g.ii. (Opposite Direction Operations ODO) – Not Feasible – Not Applicable

*Description:* Review recent implementation of ODO procedures and their impacts in the San Francisco Bay Area.

*Roundtable Response:* The Roundtable supports the FAA's efforts to use the 050 heading for noise abatement at night. Please see the Roundtable Response to Adjustments 2.e.i., 2.e.ii., and 2.e.iii.

Adjustment - 3.a.i. (Equitability, Opposite Direction Operations ODO) – Not Feasible – Not Applicable

*Description:* Review the current nighttime operations to determine if they adequately address preferential RWY usage.

*Roundtable Response:* In addition to the Roundtable's response and requests in Adjustments 2.e.i., 2.e.ii., and 2.e.iii relative to runway use at night, the Roundtable requests that SFO's nighttime preferential runway use program remain unchanged, with the runway use at nighttime remain as follows:

1. The primary goal of the program is to use Runways 10 L/R for takeoff because they offer departure routing over the San Francisco Bay which will reduce the noise impacts over the communities surrounding SFO, including not vectoring aircraft on the SAHEY THREE departure.
2. When departures from Runways 10 L/R are not possible, the second preference would be to depart Runways 28 L/R on the SHORELINE SEVEN, QUIET SEVEN, or TRUKN TWO Procedures. These procedures incorporate an immediate right turn after departure to avoid residential communities northwest of SFO.
3. The third preference is to depart on Runways 01 L/R. While this procedure directs aircraft over the bay, jet blast from these departures affects communities south of SFO.

Additional information regarding Opposite Direction Operations/Nighttime flights can be found in Attachment B.

**Attachment D: SFO Roundtable Response to FAA Initiative Feasibility Report**

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Adjustment - 3.b.ii. (Interactions and agreements) – Feasible

*Description:* Review facility agreements to ensure they are effective and efficient with regard to routing and speeds.

*Roundtable Response:* In its 35-year history, the Roundtable has maintained working relationships with its advisory members, including NCT, airlines, and the FAA airports district office. The Roundtable membership understands how key it is to have representatives from NCT involved with noise abatement at Roundtable meetings, Noise 101 workshops, and as our host for yearly NCT visits. We welcome the opportunity to discuss noise abatement with the controllers and as stated in a previous Adjustment, provide a noise presentation that can be used at NCT during training sessions.



Scenic Pacifica  
Incorporated Nov. 22, 1957

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## CITY OF PACIFICA

170 Santa Maria Avenue • Pacifica, California 94044-2506  
[www.cityofpacifica.org](http://www.cityofpacifica.org)

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**MAYOR**  
Sue Digre

**MAYOR PRO TEM**  
Mike O'Neill

**COUNCIL**  
Karen Ervin  
Mary Ann Nihart  
John Keener

July 25, 2016

Regional Administrator Glen A. Martin  
FAA Western-Pacific Region  
P.O. Box 92007  
Los Angeles, CA 90009

Dear Mr. Martin:

I write to you today on behalf of the City Council of the City of Pacifica.

Pacifica is one of the first members of the SFO Community Airport Roundtable and has been an active participant since its inception in 1981. Our current representative has been a participant since 2002 and is well aware of the hard work and dedication of members to ensure that the Roundtable mission was consistently clear and steadfast. That Mission is safety in the air and quiet skies for neighborhoods below, without shifting noise impacts to member cities.

In the past, aircraft generally flew higher over Pacifica and mostly over the ocean. Historically, it was only our northern neighborhoods that were affected. Since NextGen, the entire city of Pacifica is under constant assault by aircraft noise. Pacifica residents are irate that their years of endurance and participation in the SFO Roundtable, have resulted in significantly lower flights, and a higher percentage of flights over Pacifica from SFO and Oakland. These and new flight paths down the entire spine of Pacifica have created a substantial deterioration in the quality of life throughout our beloved city.

The SFO Roundtable expected NextGen to enhance air travel and result in Quieter Skies, instead it has caused neighborhoods to be severely impacted by constant aircraft noise. Residents are experiencing extreme health issues due to the low, incessant and loud aircraft noise. Roundtable members are shocked that their mission to create quiet skies has been thwarted by flight paths over residential areas. Flight paths should not prioritize the concerns of airline profits over the health concerns of the vast population on the ground.

NextGen has moved aircraft over residential areas throughout the San Francisco Bay area that previously passed over the Ocean, the Bay and non-residential areas. SFO Roundtable members and residents everywhere challenge the underlying reason for such a negative

change. We expect both safety in the skies and an equal dedication to the protection of health and safety of the residents below.

We urge the FAA and the Airline Industry to:

- Fly higher over the City of Pacifica
- Direct most flights traversing Pacifica over the ocean and non residential areas.
- Research the feasibility of waypoints that direct traffic significantly off the Pacifica coastline: A potential WHALE waypoint 5 miles out due west of Pacifica's most southern and most western point.
- Remove any and all low altitude level offs for all runway 28L and 28R straight out departures

The FAA is the voice of protection for the American Public both in the skies and below. The American Public does treasure air flight opportunities. We also treasure our peace and quiet. We are concerned that the Airline Industry may be more interested in saving time and fuel than respecting a basic quality of life for our specific neighborhoods. We trust that we have Congress and the FAA to champion our safety and quality of life in the skies and in our neighborhoods below. The harsh health impacts in our neighborhoods demand immediate relief. The results of our research listed above are positive changes.

Sincerely,



SUE DIGRE Mayor

cc: City Council City Manager  
City Attorney  
Congresswoman Jackie Speier



# TOWN OF HILLSBOROUGH

1600 FLORIBUNDA AVENUE

HILLSBOROUGH

CALIFORNIA

94010-6418

November 15, 2016

The Honorable Anna Eshoo  
United States House of Representatives  
698 Emerson Street  
Palo Alto, CA 94301

The Honorable Sam Farr  
United States House of Representatives  
701 Ocean Street, Room 318C  
Santa Cruz, CA 95060

The Honorable Jackie Speier  
United States House of Representatives  
155 Bovet Road, Suite 780  
San Mateo, CA 94402

Subject: SFO Airport/Community Roundtable Response to Address Noise Concerns

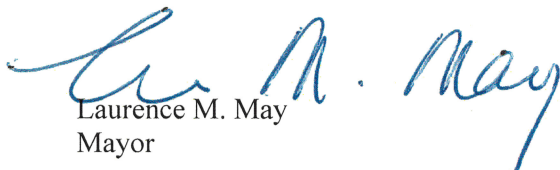
Dear Congresswoman Eshoo, Congressman Farr and Congresswoman Speier:

As a member of the SFO Airport/Community Roundtable, the City Council of the Town of Hillsborough supports the Roundtable's response to the FAA Initiative to Address Noise Concerns.

The Hillsborough City Council is concerned that citizens of Hillsborough have experienced an increase in noise from aircraft departures, arrivals and flight at the SFO Airport over the past year, and since the implementation of the FAA's Next Generation (NextGen) Air Transportation System in 2015. We believe it is important that our citizens are able to maintain a quality of life free from or limited in effects of noise pollution from aircraft and the airport. We support the efforts of the SFO Airport/Community Roundtable in its recommendations as expressed in its letter to our congressional representatives and in the efforts to develop regional solutions to address aircraft noise.

While nothing has been proposed to our knowledge that would increase any flights or noise over our town, we would clearly oppose any such actions if such were ever considered.

Sincerely,



Laurence M. May  
Mayor

cc: City Council  
James Casteneda, Program Coordinator, SFO Airport/Community Roundtable

## RESOLUTION NO. 6332

### RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENLO PARK REQUESTING ACTION FROM THE FEDERAL AVIATION ADMINISTRATION TO REDUCE AIRCRAFT NOISE IN THE CITY OF MENLO PARK

WHEREAS, the City of Menlo Park desires to maintain a pleasant quality of life for our residents; and

WHEREAS, the City of Menlo Park will cooperate with all local, State and National agencies and provide its best efforts toward minimizing aircraft noise; and

WHEREAS, the City participates in the San Francisco Airport/Community Roundtable (SFO Roundtable) in an effort to reduce the impacts of commercial flights over the city of Menlo Park; and

WHEREAS, U.S. Representatives Anna Eshoo, San Farr and Jackie Speier have formed a Select Committee on South Bay Arrivals to develop regional solutions to address aircraft noise; and

WHEREAS, the City Council seeks to have its position on aircraft noise articulated to the Federal Aviation Administration (FAA), the Select Committee and the SFO Roundtable.

NOW, THEREFORE BE IT RESOLVED by the Menlo Park City Council as follows:

1. Menlo Park residents have been negatively affected by increased aircraft noise caused by the implementation of the FAA's Next Generation Air Transportation system (NextGen) in 2015.
2. The City Council supports regional cooperation in addressing aircraft noise, and supports the efforts of the Select Committee and the SFO Roundtable to seek out and implement these solutions.
3. The City Council requests that the FAA reduce the arrivals into San Francisco International (SFO) using the BDEGA or Point Reyes West route over the Peninsula and instead utilize the BDEGA East route over the San Francisco Bay.
4. If the BDEGA/Point Reyes West route must be utilized, that airplanes be required to fly at a higher altitude over the mid-Peninsula before beginning their U-turn over Palo Alto.
5. The FAA previously agreed with Representative Eshoo in 2000 that the minimum altitude over the MENLO waypoint be 5,000 feet under visual flight rules (VFR). Under NextGen, the altitude over the MENLO waypoint is 4,000 feet regardless of



weather conditions in order to adhere to an Optimized Profile Descent (OPD) of 2.85 degrees. The average altitude over the MENLO waypoint has therefore decreased from 4,928 feet during September 2010 to 4,452 feet in September 2015.

6. The City Council requests that the FAA increase the minimum altitude over the MENLO waypoint during visual flight conditions, as previously agreed with Representative Eshoo.
7. Several SFO arrival routes converge over the MENLO waypoint resulting in a steady increase from approximately 3,900 airplanes in September 2010 to nearly 5,000 in September 2015.
8. The City Council requests that the FAA disperse arrivals by utilizing other waypoints in addition to MENLO, preferably over the San Francisco Bay.
9. The City is vehemently opposed to any modifications to routes that would have the effect of concentrating additional flights over Menlo Park. In particular, any modification of routes which add additional aircraft to a route that approaches the MENLO waypoint would have a substantial noise impact on Menlo Park.
10. After the Select Committee on South Bay Arrivals completes its work, the FAA must put in place a continuous mechanism for gaining feedback from mid-Peninsula communities affected or potentially affected by changes in aircraft routes and procedures.

I, Pamela Aguilar, City Clerk of the City of Menlo Park, do hereby certify that the above and foregoing City Council resolution was duly and regularly passed and adopted at a meeting of said City Council on the nineteenth day of July, 2016, by the following votes:

AYES: Carlton, Keith, Mueller, Ohtaki

NOES: None

ABSENT: Cline

ABSTAIN: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of said City on this nineteenth day of July, 2016.



Pamela Aguilar, CMC  
City Clerk



City of Brisbane

50 Park Place  
Brisbane, CA 94005-1310  
(415) 508-2110  
Fax (415) 4674989  
[www.brisbaneca.org](http://www.brisbaneca.org)

November 17, 2016

The Honorable Anna Eshoo  
United States House of Representatives  
698 Emerson St., Palo Alto, CA 94301

The Honorable Sam Farr  
United States House of Representatives  
701 Ocean St, Room 318C, Santa Cruz, CA 95060

The Honorable Jackie Speier  
United States House of Representatives  
155 Bovet Road, Suite 780, San Mateo, CA 94402

Re: *FAA Initiative*, City of Brisbane's support for the SFO Airport/Community Roundtable Response

Dear Members Eshoo, Farr, and Speier:

As the Mayor of the City of Brisbane, I want to thank you for caring about the health and welfare of my constituents as it relates to airplane overflight in our community. Through your sincere and diligent efforts, you were able to get the public a seat at the table with the FAA to seriously address noise and health impacts resulting from flights out of SFO and OAK. Through the FAA Initiative process, our communities were provided a platform to address our concerns, understand the issues and put forth real solutions that seek to find coexistence with our surrounding airports.

Airplanes flying over our community not only diminish our ability to live a peaceful existence, but also negatively impact the health of our citizens. Quality of life is severely compromised when people are constantly being awakened in the middle of the night, children struggle to concentrate at school, every morning is greeted by a constant barrage of noisy flights seven days a week.

We strongly support the efforts of our Congressional Representatives, the SFO Roundtable, and the FAA to collaboratively work together to find solutions that reduce negative noise impacts caused by airplanes, while also maintaining safety in our skies.

We strongly support the following recommendations that have been made in the SFO Roundtable Response Document:


- At night, fly the 050 Operation as often as possible.
- Create a southbound destination for the NIITE procedure.
- Fly the CNDEL procedure to the CNDEL waypoint, then preferably fly out the Golden Gate and down the coast. This would be an excellent solution to reduce noise impacts because planes would fly over the water, rather than over people's homes.
- Short term SSTITK, fly planes over the Bay (at least to SEPDY) for as long as possible to achieve higher altitudes before turning planes in a relatively wide dispersal path as they make their way to the ocean.
- Long term SSTITK, move the waypoint as far north and east from SEPDY as possible, then preferably fly out the Golden Gate and down the coast. This would be an excellent solution to reduce noise impacts because planes would fly over the water, rather than over people's homes.

We understand that we live near an airport, and that Brisbane should expect to receive some level of airplane noise. However, the number of planes that fly through our City is excessive and unfair. The busiest route in the country is SFO to LAX, which predominately passes through our City as the planes are at full thrust, gaining altitude. We recently learned that SFO is now at historic levels of flight volume, with more to come: our residents cannot be the collateral damage of insensitive growth at SFO. Using the Bay and Pacific Ocean to route airplanes to Southern CA destinations is a respectful way for SFO to grow, while drastically reducing noise and the fuel pollution that rains down on Brisbane.

The suggestions put forth in the SFO Roundtable Response document provide balanced perspectives, efficient use of non-residential areas, and a spirit of mutual collaboration to create solutions that achieve significant objectives for everyone.

Our Community will be by your side as you work with the FAA to embrace the solutions in the SFO Roundtable Response Document, and guide them to be sincere partners in reducing negative impacts from airplanes.

Sincerely,



Cliff Lentz

Mayor of Brisbane

cc:

Glen Martin, Regional Administrator

Clark Desing, Director, Western Service Center

Ron Fincher, Director, Air Traffic Operations Western Service Area South

Tony DiBernardo, Terminal District Manager, Sierra Pacific District Air Traffic Operations

Don Kirby, Manager, NORCAL TRACON

Tracey Johnson, Manager, Quality Control Group, Mission Services

Mindy Wright, Manager, South Airspace & Procedures Team

Members, SFO Airport/Community Roundtable

Members, Select Committee on South Bay Arrivals