



Approved by the Tactical Operations Committee April 2016

Operator Input to Northern California Noise Initiative Plan

*A Report of the Tactical Operations Committee in Response to
Tasking from the Federal Aviation Administration*

April 2016

Operator Input to NorCal Initiative Plan

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Background and Introduction

Responding to noise mitigation proposals from elected and community representatives in Northern California, the FAA committed to a three-phase study in which it is analyzing a set of proposed actions and determining if they are initially feasible, flyable and operationally acceptable from a safety perspective. The *FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties* (NorCal Initiative Plan, see Appendix A) is focused on the Northern California Terminal Radar Approach Control Facility (TRACON), also known as “NorCal.”

The NorCal Initiative Plan identifies six specific suggestions in Section 4 (4a through 4f) requiring engagement of aircraft operators. The six issues, as written in the plan, are:

- **Use of speed brakes:** Operators can focus on reducing the use of speed brakes. Pilots have the sole responsibility to determine when speed brakes should be used.
- **Runway choices:** Operators may request more “fly friendly” Runways, especially at night, to reduce noise concerns in certain locations.
- **IFP choices:** Operators can file “fly friendly” procedures, especially at night, to reduce noise concerns in certain locations.
- **Nighttime Offloads/Routes:** Communities want a focus on reducing noise concerns at night.
- **Early Turns:** Operators can assist ATC in ensuring as much as possible of a flight is over water versus over land by not requesting early turns on course.
- **International air carrier execution of Optimized Profile Descents (OPDs):** AJV will reach out to IATA to discuss and get input and perspective on this issue.

The Western Regional Task Group (WRTG) of the Tactical Operations Committee (TOC) was requested to respond to the six issues in Section 4. The task request (see Appendix B) included three components:

- Task 1 – Review the six specific suggestions in Section 4 (4a through 4f) of the attached draft of the NorCal Initiative Plan and provide operator feedback on the impact of these specific suggestions. Feedback may be in the form of neutral, negative or positive feedback.
- Task 2 – Feedback will describe impacts (if any) and rationale.
- Task 3 – Provide any additional ideas/recommendations which might better help address community noise concerns.

While the Tactical Operations Committee was only asked to review six of the potential noise reducing measures under consideration, the FAA continues to assess a number of other possible measures, documented in the NorCal Initiative Plan, more specific to flight procedures. The six items addressed in this report are not independent of these other components of the feasibility study. Additionally, these six items are not necessarily linked to other noise-related efforts being considered in Northern California and/or in the National Airspace System (NAS).

Methodology

The WRTG, which is comprised of individuals with representative experience from airlines, general aviation, labor organizations and others with expertise on operations in the western region of the NAS,

was requested to draft a response to this tasking request. Accordingly, the WTRG conducted “virtual” meetings to discuss the questions posed in the task and draft this report. The full membership of the WTRG is included as Appendix C of this report.

Response to Six Suggestions in NorCal Initiative Plan

The following responses are generated based on the safe and efficient operation of aircraft in a manner that is sensitive to the environmental issues being requested by the FAA.

Suggestion: Use of speed brakes

Operators can focus on reducing the use of speed brakes. Pilots have the sole responsibility to determine when speed brakes should be used.

Response: While pilots prefer to fly an idle descent without using speed brakes, sometimes speed brakes are necessary to ensure the aircraft remains consistent with the Instrument Flight Procedure or ATC clearance. Arriving aircraft following the same procedure may have different vertical profiles due to the type, weight and navigation system of the aircraft, winds and weather conditions, ATC clearances, volume of air traffic, and other factors. At times, these variables can put the aircraft into an undesired energy state (i.e., too high/too fast) that make use of speed brakes necessary. Therefore, speed brakes are only used when operational conditions require.

Suggestion: Runway choices

Operators may request more “fly friendly” Runways, especially at night, to reduce noise concerns in certain locations.

Response: Aircraft operators are sensitive to the need to minimize the impact of noise in certain locations. Runways are assigned by air traffic control for each flight based on the aircraft type, the weather conditions and, to the extent feasible, existing agreements between air traffic control facilities. There may be conditions in which a pilot requests a specific runway based on operational need, such as requiring a longer runway due to aircraft weight. However, runway assignment is typically communicated from air traffic to the pilot making pilot requests for non-standard runways unlikely on a regular basis.

Suggestion: IFP choices

Operators can file “fly friendly” procedures, especially at night, to reduce noise concerns in certain locations.

Response: Aircraft operators file flight plans up to several hours before scheduled departure based on forecasts of multiple factors, including airport configuration (runways in use), aircraft weight, winds, weather and temperature. At the time of departure, air traffic control is responsible to ensure the appropriate Instrument Flight Procedure is assigned to each aircraft based on the aircraft type, destination, operator capabilities and operational conditions. The intent of such IFPs is to ensure a safe and orderly flow of aircraft on departure or arrival. When conditions permit, pilots understand that air traffic may assign a “fly friendly” departure or arrival procedure at night.

Suggestion: Nighttime Offloads/Routes

Communities want a focus on reducing noise concerns at night.

Response: Aircraft operators have a history of working with the FAA and communities to reduce environmental impact and continue to do so. Further study and refinement of the existing Nighttime SFO runway use program may be an opportunity to improve the program's performance for all stakeholders.

Suggestion: Early Turns

Operators can assist ATC in ensuring as much as possible of a flight is over water versus over land by not requesting early turns on course.

Response: When departing, pilots follow either the turns on the FAA's published departure procedure or ATC-provided clearances. Departure procedures (DP) are coded in databases on an aircraft's flight management system (on board computer). When planning and operating the procedure, the pilot selects the DP, briefs it and plans to fly it in its entirety. They execute the procedure unless ATC provides an alternate instruction.

Suggestion: International air carrier execution of Optimized Profile Descents (OPDs)

AJV will reach out to IATA to discuss and get input and perspective on this issue.

Response: IATA is willing to support with coordinating dialogue between a specific international operator's flight technical group and FAA AJV and Flight Standards staff, if there are specific events in which international air carriers executing OPDs deviate from what the FAA expects.

Additional Ideas/Recommendations

The TOC was requested to provide any additional ideas or recommendations that might better help address community noise concerns. Items 2, 3, and 4 of the 6 suggestions the TOC was tasked to address relate to existing SFO Noise Abatement Procedures, which are available at <http://www.flysfo.com/community-environment/noise-abatement>. The FAR Part 150 process should be considered as the FAA evaluates the appropriate vehicle to develop, assess and implement noise abatement procedures as components of the Noise Compatibility Plan.

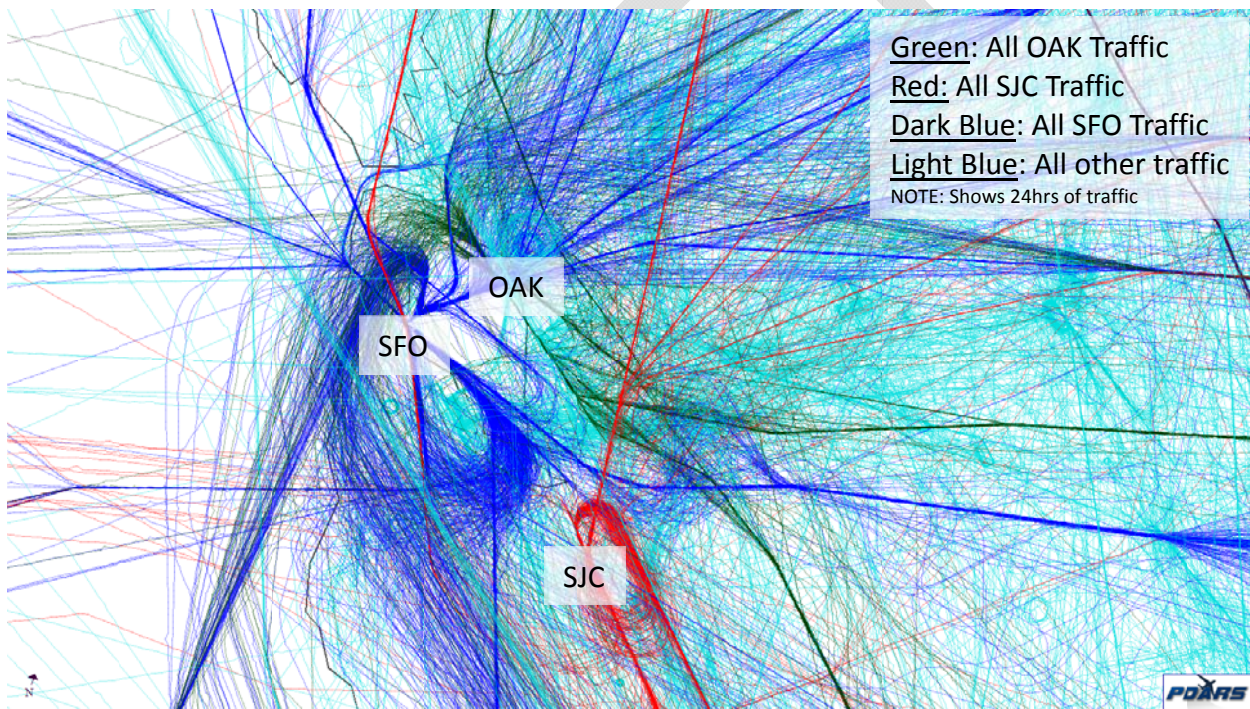
Appendix A: NorCal Initiative Plan

FAA Initiative to Address Noise Concerns of Santa Cruz/Santa Clara/San Mateo/San Francisco Counties

Compiled at the Requests of Representatives Farr, Eshoo and Speier

Executive Summary

Northern California airspace is very complex, with traffic from several major airports, smaller regional airports and military activity. All arrival and departure procedures within the Northern California airspace are interconnected, interdependent and were designed to improve safety and efficiency within the National Airspace System (NAS).



Longstanding issues with, as well as changes to, the Northern California TRACON instrument approach and departure procedures have generated noise concerns from local residents of Santa Cruz, Santa Clara, San Mateo and San Francisco Counties. In meetings and correspondence with congressional offices and local community representatives, the Federal Aviation Administration (FAA) has received recommendations to adjust the current published procedures. In response, the FAA has undertaken the following noise initiative to explore such modifications. Airspace and air traffic procedures are highly dependent upon each other within the NAS and must be evaluated collectively to ensure safety and efficiency.

This initiative will be comprised of three phases. During the first phase, the FAA will conduct a detailed analysis and a preliminary feasibility study focusing on flight procedures criteria and overall fly-ability of the new Performance Based Navigation (PBN) procedures, potential procedural modifications including speed/altitude adjustments, airspace changes and possibility of moving existing waypoints. An assessment of impacts to operations at the surrounding airports and associated procedures will be completed. In addition, coordination with the local stakeholders will be conducted during this first phase.

During the second phase, FAA will consider any amendments and/or new procedures that are determined to be initially feasible, flyable, and operationally acceptable from a safety point of view. As part of this effort, FAA will conduct the formal environmental and safety reviews, coordinate and seek feedback from existing and/or new community roundtables, members of affected industry, and the National Air Traffic Controllers Association (NATCA) before moving forward with the formal amendment process. During phase three, the FAA will implement procedures; conduct any required airspace changes and additional negotiated actions, as needed.

In addition to its mandate to ensure the safe and efficient use of the NAS, the FAA complies with the requirements of the National Environmental Policy Act (“NEPA”). As such, although not specifically detailed within this noise initiative, the FAA’s procedures and standards for evaluating noise impacts associated with all potential modifications to currently published procedures—consistent with FAA Order 1050.1F (effective July 16, 2015)—will be followed and undertaken before implementing any airspace changes. Finally, this document does not constitute either a final decision of the FAA or a re-opening of the FAA’s August 6, 2014 final decision for the Northern California (NorCal) Optimization of Airspace and Procedures in the Metroplex (OAPM).

Initiative:

Phase one: Initial Analysis, Feasibility, and Coordination

1. Instrument Flight Procedures/Airspace:

Planned Action: The FAA will conduct a detailed analysis to include preliminary feasibility from a procedures/criteria perspective and fly-ability from an aircraft perspective. Procedures will be analyzed, modeled, and flown in flight simulators. An assessment of the impact to operations and other procedures will be completed. The analysis should indicate whether the potential procedural changes could be made to effectively reduce noise.

a. Altitude adjustments: Raising the floor and/or ceiling of existing procedures may allow the FAA to do the same for other procedures and reduce noise concerns in certain locations.

i. Analyze raising the floor and ceiling of existing SERFR and BRIXX arrivals. (AJV-WOSG)

a) Evaluate raising the altitude at MENLO waypoint to 5,000 feet or establish a new waypoint to allow for crossing the MENLO area closer to 5,000 feet.

ii. Analyze reducing impacts of SSTIK, WESLA, and CNDLE departures. (AJV-WOSG)

Status: Analysis began October 2, 2015

Completion Date: TBD

b. Track adjustments: Where possible, tracks should be adjusted away from areas of concern and moved over water versus land.

i. Analyze moving the SSTIK and PORTE departures more over water. (AJV-WOSG)

ii. Analyze reducing the impacts of SSTIK, WESLA, and CNDLE departures. (AJV-WOSG)

- iii. Analyze moving the ILS/Visual Approach to Runway 28L offshore. (AJV-WOSG)
- iv. Analyze offsetting Visual Approaches until passing the San Mateo Bridge. (AJV-WOSG)
- v. Analyze the impact of non-charted visual approaches to RWY 28 (AJV-WOSG)

NOTE: There are three charted visual approaches to San Francisco (SFO). Two are FAA published approaches, the TIPP TOE VISUAL and the QUIET BRIDGE VISUAL. The third approach is owned by United Airlines and is a special charted visual, also available to other airlines. If changes are made to the procedure, the FAA would request that United Airlines and each airline that uses this procedure update their databases.

Status: Analysis began October 2, 2015

Completion Date: TBD

c. Waypoint Adjustments:

- i. On the SERFR arrival, analyze moving EPICK waypoint south to approximately 36 54 52.8N and 121 56 32.7W, add restriction to speed of 280 knots and altitude of 15,000 feet. (AJV-WOSG)
- ii. Analyze making adjustments to PORTE departure to maximize offshore routing. (AJV-WOSG)
- iii. Evaluate adding a new waypoint roughly over the Highway 17 summit area, between EPICK and EDDYY, with at least a 10,000 feet and 250 knot restriction. (AJV-WOSG)

Status: Analysis began October 2, 2015

Completion Date: TBD

d. Speed Adjustments:

- i. Analyze moving speed adjustments over water instead of over land. (AJV-WOSG)

- ii. Analyze reducing the speed on the current SERFR arrival. (AJV-WOSG)
- iii. Analyze data to determine compliance with the requirement to maintain 250 knots or less below 10,000 feet Mean Sea Level (MSL). (AJV-WOSG)

Status: Analysis began October 2, 2015

Completion Date: TBD

e. Holding Patterns

- i. On the SERFR arrival, study current use of the holding pattern at EPICK and the possibility of moving the holding pattern to WWAVS. (AJV-WOSG)

Status: Analysis began October 2, 2015

Completion Date: TBD

f. PBN Procedures:

- i. Evaluate proposed PBN arrival procedures from local community groups for feasibility, fly-ability and safety concerns. (AJV-WOSG)
- ii. Evaluate the effect of dispersing flight tracks over a wider range. (AJV-WOSG)
- iii. Study the feasibility of creating new transitions for the NIITE departure for airports to southbound destinations. (AJV-WOSG)
- iv. Study the possibility of new SFO RNP approaches that will serve Runways 28 L/R that follow the Big Sur ground track, curved out over the Bay crossing MENLO at 5000-6000 feet. (AJV-WOSG)

Status: Analysis began October 2, 2015

Completion Date: TBD

2. Air Traffic Control:

Planned Action: The Western Service Center, on behalf of the Air Traffic Director of Operations, will work with the facilities to assess what opportunities exist to modify operations. Part of this assessment will include looking at the possibility of adjustments during reduced volume night operations, even if day operations cannot be changed. If changes can be made there will need to be a safety assessment, controller training, pilot briefings, and the SFO community roundtable may need to be engaged.

a. Sequencing and Vector Points: There may be actions air traffic controllers can take to reduce noise concerns such as assessing whether changes can be made to vectoring aircraft over water more.

- i. Analyze adjusting air traffic activity in the vicinity of Woodside VOR including altitudes. (AJT, AJV-WOSG)
- ii. Analyze adjusting air traffic to eliminate early turns over land. (AJT, AJV-WOSG)
 - a) Focus on leaving aircraft over water as long feasible.
 - b) Keep aircraft on the SSTIK departure until the SSTIK waypoint before turning.
 - c) Keep aircraft on the NIITE departure to at least the NIITE Waypoint as much as possible.

Completion Date: TBD

b. Use of Descend Via:

- i. Increase use of descend via procedures. (AJT, AJV-WOSG)
- ii. Increase use of descend via procedures for international flights. (AJT, AJV-WOSG)

Completion Date: TBD

c. Class B Containment: Some current procedures, as designed, are not fully contained within the existing SFO Class B airspace.

- i. Analyze current versus historic data to determine trends and risks to aircraft exiting and reentering Class B airspace. (AJT, AJI, AJV-WOSG)
- ii. Analyze current RNAV arrival and departure procedures to determine necessity and feasibility of redesign. (AJT, AJI, AJV-WOSG)
- iii. Analyze current RNAV arrival and departure procedures to determine necessity and feasibility of redesigning Class B airspace. (AJI, AJV-WOSG)

Status: Ongoing

Completion Date: TBD

d. Speed Brakes:

- i. Study the potential reduction and/or elimination of the use of speed brakes and conduct a track analysis to determine flight characteristics, utilizing the Aviation Safety Information Analysis and Sharing (ASIAS) database. (MITRE CAASD)
- ii. Work with stakeholders to determine feasibility of reducing the use of speed brakes and other surface controls over land.

Status: Ongoing

Completion Date: TBD

e. Runway Usage:

- i. Study the feasibility of increasing the use of Runway 10. (AJT)
- ii. Study the feasibility of increasing the use of RWY 01 for Departures (AJT). Study the feasibility of proceduralizing the 050 departure heading off RWY 01 at night. (AJT)
- iii. Study the necessity of extending nighttime operations at SFO. According to the SFO Standard Operating Procedure, the preferred Runway for operations between 0100 and 0600 local time is departing Runway 10 and landing Runway 28. (AJT)

- iv. When weather conditions permit, study the increase in use of the Shoreline 7 Departure off RWY 28R or 28L. (AJT, AJV-WOSG)

Completion Date: TBD

f. Instrument Flight Procedures (IFP):

- i. Study the feasibility of creating new transitions for the NIITE departure for airports to southbound destinations. (AJV-WOSG)
- ii. When weather operations permit, study the use of the Shoreline7 departure off of Runway 28R or 28L. (AJT, AJV-WOSG)
- iii. Study the use of offset visual approaches in lieu of straight in visual approaches. (AJT, AJV-WOSG)
- iv. Study the usage of GAP departure. (AJT, AJV-WOSG)
- v. Study whether international and domestic aircraft are handled the same by Air Traffic Control (ATC). (AJT, AJV-WOSG)
- vi. Study the feasibility of increasing the use of the SSTIK departure during the day and the NIITE departure at night. (AJT, AJV-WOSG)

Completion Date: TBD

g. Opposite Direction Operations (ODO): Operational changes related to ODO may have increased noise concerns at night in certain locations.

- i. Review recent implementation of ODO procedures and their impacts in the San Francisco Bay area. (AJT, AJI)
- ii. Assess potential options for night operations. (AJT, AJI)

Completion Date: TBD

3. Traffic Management

Planned Action: The Western Deputy Director of System Operations, on behalf of the Air Traffic Director of Operations, will work with the Western Service Center and local facilities to evaluate the actions and suggestions below. During the analysis, the focus will be on use of traffic management tools and initiative to ensure current practices are as effective and efficient as possible for the potential reduction of noise concerns.

- a. Equitability:** Concentration of noise should be reviewed, especially during nighttime operations.

- i. Review the current nighttime operations to determine if they adequately address preferential Runway usage. (AJT, AJV-WOSG)

NOTE: According to the SFO Standard Operating Procedure, the preferred Runway for operations between 0100 and 0600 local time is departing Runway 10 and landing Runway 28.

- ii. Evaluate the effect of dispersing flight tracks over a wider range or developing multiple parallel RNAV procedures. (AJT, AJV-WOSG)

Completion Date: TBD

- b. Interactions and agreements:** Facility agreements between Northern California TRACON (NCT), Oakland Air Route Traffic Control Center (ARTCC) (ZOA), and Los Angeles ARTCC (ZLA) might be amended to reduce the need for off-course vectors and speed adjustments to potentially reduce noise concerns in certain locations.

- i. Review facility agreements for possible changes to aircraft set up and sequencing. (AJT, AJV-WOSG)
- ii. Review facility agreements to ensure they are effective and efficient with regard to routing and speeds. (AJT, AJV-WOSG)

Completion Date: TBD

- c. Time Based Flow Management (TBFM):** The use of TBFM to enhance sequencing may reduce the need for off course vectors and speed adjustments and may reduce noise concerns in certain locations.

- i. Review the current and projected status of using TBFM procedures. (AJT, AJV, AJR)
- ii. Review the impact of using TBFM on current noise issues. (AJT, AJV, AJR)

Completion Date: TBD

- d. Nighttime Offloads/Routes:** Communities want a focus on reducing noise concerns at night.

- i. Review nighttime operations. (AJT)
- ii. Review cargo flight operations to determine if previous actions have adequately addressed all issues. (AJT)
- iii. Review utilizing the current Big Sur for late night cargo arrivals. (AJT, AJV-WOSG)
- iv. Review the current nighttime operations to determine if they adequately address preferential Runway usage. (AJT, AJV-WOSG)

NOTE: According to the SFO Standard Operating Procedure, the preferred Runway for operations between 0100 and 0600 local time is departing Runway 10 and landing Runway 28.

Completion Date: TBD

4. Operators:

Planned Actions: AJV will engage Airlines for America (A4A) and The International Air Transport Association (IATA) nationally to solicit perspective and input into defined issues. Operator involvement needs to be discussed, especially if the FAA does not utilize the roundtable concept to work issues with stakeholders. It is assumed that the Office of the Associate Administrator for Airports (ARP) would want some level of input or engagement as SFO should also be involved directly in these conversations.

- a. **Use of speed brakes:** Operators can focus on reducing the use of speed brakes. Pilots have the sole responsibility to determine when speed brakes should be used. (A4A, IATA)

Completion Date: TBD

- b. **Runway choices:** Operators may request more “fly friendly” Runways, especially at night, to reduce noise concerns in certain locations. (A4A, IATA, SFO)

Completion Date: TBD

- c. **IFP choices:** Operators can file “fly friendly” procedures, especially at night, to reduce noise concerns in certain locations. (A4A, IATA, SFO)

Completion Date: TBD

- d. **Nighttime Offloads/Routes:** Communities want a focus on reducing noise concerns at night. (A4A, IATA, SFO)

Completion Date: TBD

- e. **Early Turns:** Operators can assist ATC in ensuring as much as possible of a flight is over water versus over land by not requesting early turns on course. (A4A, IATA)

Completion Date: TBD

- f. **International air carrier execution of Optimized Profile Descents (OPDs):** AJV will reach out to IATA to discuss and get input and perspective on this issue. (IATA)

Completion Date: TBD

5. Community Engagement

- a. **Community Forums:** Addressing noise concerns in a densely populated and operationally complex area like Northern California is best done in a forum (such as existing and/or new roundtables) that includes community leaders and is supported by the FAA and Bay Area Airports. (AWP, AGI)
- b. **San Carlos Airport:** Apart from the efforts described in this report, there are TBD conversations with communities around the airport that are concerned about the increase in flights and noise. (AWP)

Phase two: Modifications and Review

Based on the outcome of the initial analysis, feasibility and coordination, modifications may be made to the proposed procedures and/or airspace or operating procedures using the guidance found in current FAA Orders, directives and labor agreements which includes conducting the Environmental Review; Safety Risk Management (SRM); and appropriate public outreach.

Completion Date: TBD

Phase three: Implementation

Based on the outcome of the modifications and review phase and assuming the proposed procedure(s) meet the purpose and need, as well as all applicable environmental laws and requirements, the controller workforce and operators will be trained/briefed on any operational or procedural changes before publication and operational use.

Completion Date: TBD

DRAFT

Appendix B: FAA Tasking Letter



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

MAR 8 2016

Ms. Margaret Jenny
President
RTCA, Inc.
1150 15th Street NW
Suite 910
Washington, DC 20036

Dear Ms. Jenny:

The FAA has made great progress in reducing the number of people around airports that are exposed to significant aircraft noise. Nevertheless, there is an increasing level of public debate, political interest, and litigation related to aircraft noise. Public expectations with respect to noise exposure are changing. While noise levels might be the same or less due to quieter aircraft, the simple volume and concentration of flights over communities (particularly related to NextGen implementation) seems to be shaping perceptions. Dialogue with congressional and community representatives has highlighted a need to review engagement processes and associated guidance materials.

The FAA has initiated several efforts in response to noise concerns. We are developing a Community Involvement Plan for performance based navigation (PBN) to proactively identify and address community concerns during PBN projects and before PBN flight procedures are finalized. The plan also addresses more effective communication of the purpose and potential impacts of PBN projects. Improvements in how outreach is conducted for procedure changes include: early outreach to airport authorities for help in identifying local environmental sensitivities; improved responses and documentation of communication with external individuals and groups; and greater executive-level, in addition to staff-level, interaction when initiating outreach to airport authorities.

Several months ago, the FAA received several detailed, technical suggestions from organized public noise groups involving procedural and/or operational changes proposed to address community noise concerns in Northern California principally associated with operations in and out of San Francisco International Airport (SFO). The FAA was given this information through various political representatives who have continued to engage on behalf of their constituents in the SFO area. The focus of the proposals was in Santa Cruz, Santa Clara, San Mateo, and San Francisco counties. FAA committed to analyze the proposed actions and determine if they are initially feasible, flyable, and operationally acceptable from a safety perspective. The FAA will complete Phase 1 of this initiative and has committed to briefing its findings at the end of March. Phase 2 will likely utilize the PBN Order to do the formal development activities for those procedure proposals determined as feasible in Phase 1. Phase 3 will be the implementation of the procedures from Phase 2 above, as well as the

implementation of other feasible non-procedural proposals. FAA intends to work Phases 2 and 3 with the airport, communities and operators through the SFO Roundtable.

The FAA requests that the TOC Western Regional Task Group (WRTG) perform the following tasks:

Task 1 – Review the six specific suggestions in Section 4 (4a through 4f) of the attached draft of the NorCal Initiative Plan and provide operator feedback on the impact of these specific suggestions. Feedback may be in the form of neutral, negative or positive feedback.

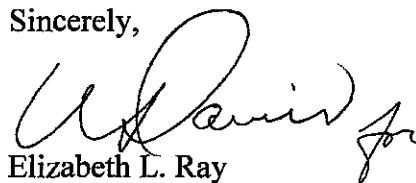
Task 2 – Feedback will describe impacts (if any) and rationale.

Task 3 – Provide any additional ideas/recommendations which might better help address community noise concerns.

Completion of these tasks will provide the FAA with help to inform better decision making moving forward. The FAA will provide subject matter experts as needed to support these tasks.

FAA would like the information/recommendations noted above by March 29, 2016.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elizabeth L. Ray', with a stylized flourish at the end.

Elizabeth L. Ray
Vice President, Mission Support Services
Air Traffic Organization

Appendix C: Members of the Western Regional Task Group

Rune Duke, Aircraft Owners and Pilots Association
Melissa McCaffrey, Aircraft Owners and Pilots Association
Lynae Craig, Alaska Airlines
Toby Miller, American Airlines, Inc.
Michael O'Brien, American Airlines, Inc.
Brian Townsend, American Airlines, Inc.
Tim Stull, American Airlines, Inc.
Mark Hopkins, Delta Air Lines, Inc.
David Vogt, Delta Air Lines, Inc.
L.A. "Jake" Bailey, Federal Aviation Administration
Joe Bert, Federal Aviation Administration
DeAnna Bridenback, Federal Aviation Administration
Tom Cawley, Federal Aviation Administration
Kenneth Fox, Federal Aviation Administration
Lenore Marentette, Federal Aviation Administration
David Meeker, Federal Aviation Administration
William Ruggiero, Federal Aviation Administration
Kim Stover, Federal Aviation Administration
Warren Strickland, Federal Aviation Administration
James Taylor, Federal Aviation Administration
Adam Thorstensen, Federal Aviation Administration
Maclovio Varner, Federal Aviation Administration
Glen Wilhelm, Federal Aviation Administration
Dan Allen, FedEx Express (Chair)
Phil Santos, FedEx Express
Kevin McKennon, Horizon Air
Jeffrey Miller, International Air Transport Association
Bill Murphy, International Air Transport Association
John Martin, JetBlue Airways
Sandra Park, Mesa Airlines
Mark Prestrude, National Air Traffic Controllers Association
Trin Mitra, RTCA, Inc.
Allan Lisonbee, SkyWest Airlines
Perry Clausen, Southwest Airlines
Kevin Coon, United Airlines, Inc.
Bill Cranor, United Airlines, Inc.
George Ingram, United Airlines, Inc.
Glenn Morse, United Airlines, Inc.
Jim Hamilton, United Parcel Service
Jay Warren, Virgin America