Meeting Announcement

Ground-Based Noise Subcommittee

Monday, March 11, 2024
1:00pm – 2:30pm
VIA HYBRID ACCESS
Brisbane City Hall- Large Conference Room
50 Park Place, Brisbane, CA 94005

Public may also join the webinar:
https://smcgov.zoom.us/j/95060340845
Or Dial-in:
US: 1 669 444 9171 Webinar ID: 950 6034 0845

This meeting of the Ground-Based Noise Subcommittee (GBN) will be in person at the above mentioned address. Members of the public will be able to participate in the meeting remotely via the Zoom platform or in person at 50 Park Road, Brisbane, CA 94005**.** For information regarding how to participate in the meeting, either in person or remotely, please refer to instructions at the end of the agenda.

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

The GBN Subcommittee meeting may be accessed through the above mentioned Zoom webinar. Members of the public may also attend this meeting physically in the Brisbane City Hall- Large Conference Room, 50 Park Place, Brisbane, CA 94005

*Written public comments can be emailed to SFORoundtable@smcgov.org and should include specific agenda item to which you are commenting.*Spoken public comments will also be accepted during the meeting in-person or via Zoom on Items NOT on the Agenda and for each Agenda Item at the option of the speaker.

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

ADA Requests
Individuals who require special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the agenda,agenda packet or other writings that may be distributed at the meeting, should contact Diane Estipona, as early as possible but no later than 10:00 am the day before the meeting at destipona1@smcgov.org. Notification in advance of the meeting will enable the Staff to make reasonable arrangements to ensure accessibility to this meeting, the materials related to it, and your ability to comment.

AGENDA

Call to Order
Terry O'Connell, Subcommittee Chairperson

Public Comment on Items NOT on the Agenda
Speakers are limited to two minutes.

AGENDA ITEMS

1. Introduction and Comments from Subcommittee Chairperson
Terry O'Connell, Subcommittee Chairperson

2. Discussion and Direction on Use of Portable Noise Monitors in Ground-Based Noise Data Gathering
Terry O'Connell, Subcommittee Chairperson
Attachment: March 6, 2024 Roundtable Coordinator Memo

a. Overview of SFO Roundtable – Ground Based Noise Subcommittee Recent Projects
Eugene Reindel, HMMH Technical Consultant to the Roundtable
Attachments/Link
HMMH LINK 2021-2023 SFO Ground Based Noise Study
HMMH January19, 2022 PowerPoint Overview of Ground Based Noise Study
HMMH February 15, 2023 Memo to GBN Subcommittee-Ground Based Noise Measurement Study
HMMH 2023 Low Frequency- Portable Monitor Review Map

b. SFO Update
Bert Ganoung, SFO Aircraft Noise Office Manager
Attachments: Map: SFO Bay Potential Portable Noise Monitors placement

c. For Discussion and Direction:
Terry O'Connell, Subcommittee Chairperson
1. Determine the placement of four portable noise monitors
2. Determine the dates to conduct noise measurements

3. Member suggestions for future Ground Based Noise Subcommittee topics
Terry O'Connell, Subcommittee Chairperson

4. Adjournment
Terry O'Connell, Subcommittee Chairperson

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

During the GBN Subcommittee hybrid meeting, members of the public may address the Membership as follows:

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

1. Your written comment should be emailed to SFORoundtable@smcgov.org
2. Your email should include the specific agenda item on which you are commenting.

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

Spoken Comments:

In-person Participation:

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

Via Teleconference (Zoom):

1. The GBN Subcommittee meeting may be accessed through Zoom online at https://smcgov.zoom.us/j/95060340845 The webinar ID: 950 6034 0845. The meeting may also be accessed via telephone by dialing in + 1 669 444 9171, entering webinar ID then press #. Members of the public can also attend this meeting physically in the Brisbane City Hall, Large Conference Room 50 Park Place, Brisbane, CA 94005.
2. You may download the Zoom client or connect to the meeting using the internet browser. If you are using your browser, make sure you are using a current, up-to-date browser: Chrome 30+, Firefox 27+, Microsoft Edge 12+, Safari 7+. Certain functionality may be disabled in older browsers including Internet Explorer.
3. You will be asked to enter an email address and name. We request that you identify yourself by name as this will be visible online and will be used to notify you that it is your turn to speak.
4. When the Chairperson calls for the item on which you wish you speak click on the "raise-hand" icon. You will then be called on and unmuted to speak.

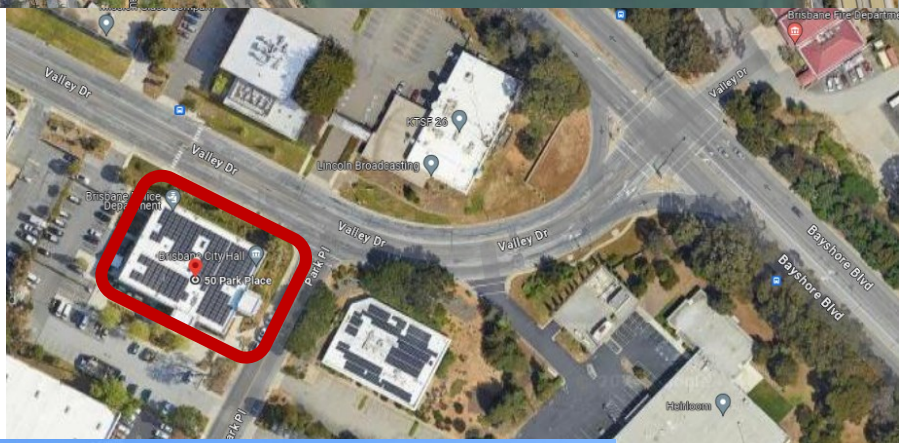
***Additional Information**:

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

SFO Roundtable—Ground Based Noise Subcommittee

Brisbane City Hall—Large Conference Room

50 Park Place, Brisbane



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March 6, 2024

TO: SFO Roundtable – Ground Based Noise Subcommittee Members

FROM: Kathleen Wentworth, SFO Roundtable Coordinator

SUBJECT: Overview of Ground Based Noise Subcommittee Recent Projects

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RECOMMENDATION:

Provide direction to staff regarding the following aspects of a proposed SFO Roundtable – Ground Based Noise Subcommittee noise measurement study:

--Determine the placement of four portable noise monitors
--Determine the dates to conduct noise measurements

BACKGROUND:

The SFO Roundtable – Ground Based Noise Subcommittee had proposed and the SFO Roundtable authorized a study which resulted in the SFO International Airport Ground Based Noise Modeling Study. This was published in January 2021 and in January 2023 was slightly revised to incorporate comments made by SFO International Airport. In addition, HMMH produced a January 19, 2022, PowerPoint (attached) explaining the highlights and outlining important aspects of this Ground-Based Noise Modeling Study

After the publication of that Study, the Ground Based Noise Subcommittee began discussion of a modest follow up study which could answer additional questions through a noise measurement study. HMMH was asked to outline such a study that could gather data and provide answers.

In a February 15, 2023 memo to the Ground Based Noise Subcommittee (attached), Eugene Reindel, HMMH, Consultant to the SFO Roundtable, outlined such a study which would address the assertion that the current "CNEL contours do not adequately include noise from ground-based aircraft operations.'

In order to acquire the necessary data, the memo listed the following four issues which should be addressed:

1. Determine which fixed noise monitors to have SFO obtain the A- and C-weighted noise data from aircraft operations to compare results inside the CNEL contours to the results in the adjacent communities.

2. **Determine the number and placement of portable noise monitors to capture the representative data from the adjacent communities – perhaps the noise propagation maps from the HMMH Report can be used to help with this task.**

3. **Determine the dates to conduct the noise measurements when the SFO fixed noise monitors have the increased functionality to measure and report both A- and C-weighted noise levels, the SFO portable noise monitors are available, and the runways are likely operating in a typical fashion during the day, evening and night as it is those typical operations that dictate the size and location of the CNEL contours.**

4. Determine the noise data to be collected and reported by SFO to the GBN Subcommittee to understand the results, such as do the adjacent communities receive more low-frequency noise (higher, lower or the same low-frequency noise levels) than those communities inside the CNEL contours? How do the A-weighted levels compare between the same communities?

HMMH memo items #1 and #4 from the above list have been answered by the SFO Roundtable Consultant in discussion with the SFO Aircraft Noise Office.

HMMH memo Items #2 and #3 are listed on the March 11, 2024 GBN Agenda for discussion and direction:

> Determine the number and **placement of portable noise monitors** to capture the representative data from the adjacent communities – perhaps the noise propagation maps from the HMMH Report can be used to help with this task. (the number of portable noise monitors to use is four as determined by SFO Airport Noise Office and Roundtable Consultant.)
>
> Determine the **dates to conduct the noise measurements** when the SFO fixed noise monitors have the increased functionality to measure and report both A- and C-weighted noise levels, the SFO portable noise monitors are available, and the runways are likely operating in a typical fashion during the day, evening and night as it is those typical operations that dictate the size and location of the CNEL contours.

#

Summary of HMMH Airport Ground-Based Noise Study

HMMH Report No. 309091.002

January 19, 2022

Outline

- Project Description
- Noise Model Inputs
- Summary of Results
- Next Steps

Project Description

Motivation:

Based upon the direction of the subcommittee, a project study area was developed to incorporate SFO and areas directly adjacent and to the southwest of Runways 1L and 1R of SFO. The project study area encompasses SFO and the cities/towns of San Bruno, Millbrae, Burlingame and Hillsborough. The majority of the project study area contains the City of Millbrae which is the closest adjacent city southwest of SFO.

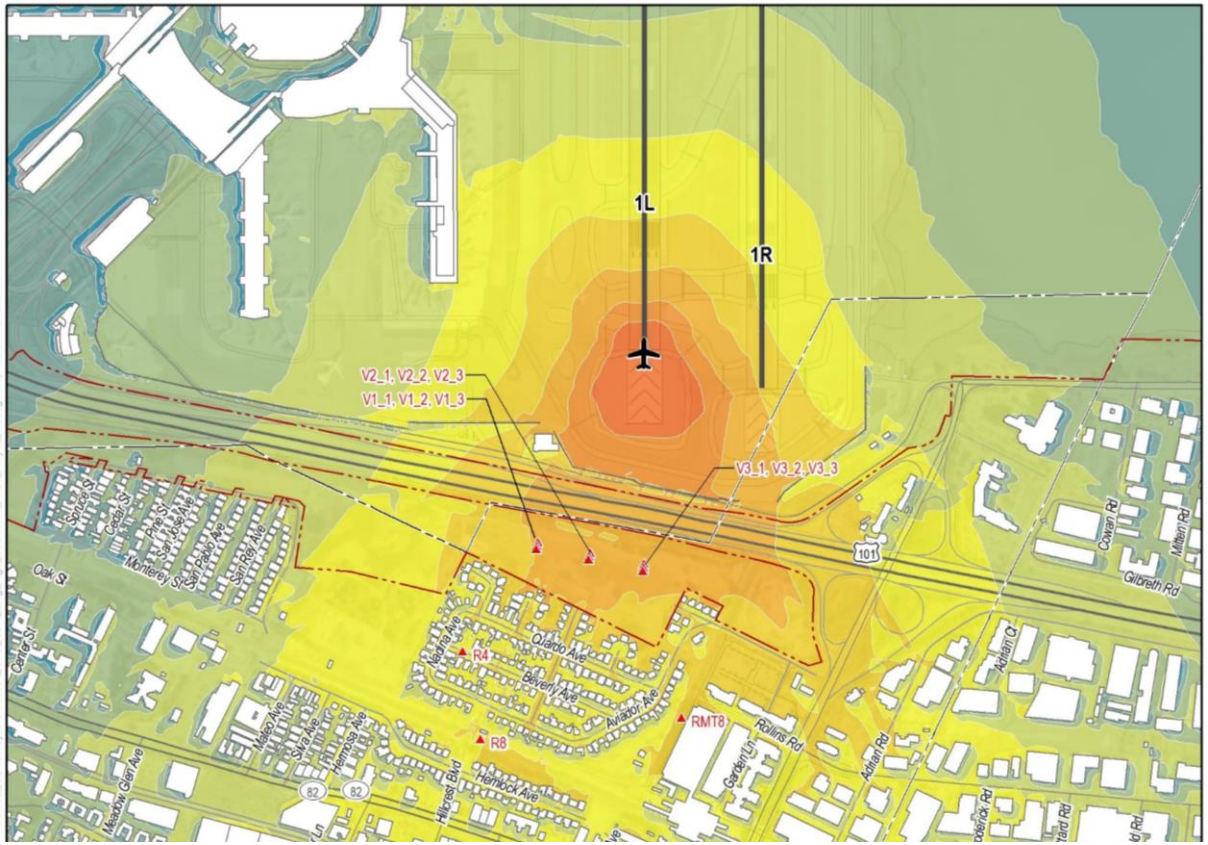
Goals:

1. *To better understand how ground-based noise propagates through the communities adjacent to SFO from aircraft departures*
2. *To assess effectiveness of vegetation to reduce ground-based noise from SFO aircraft departures*

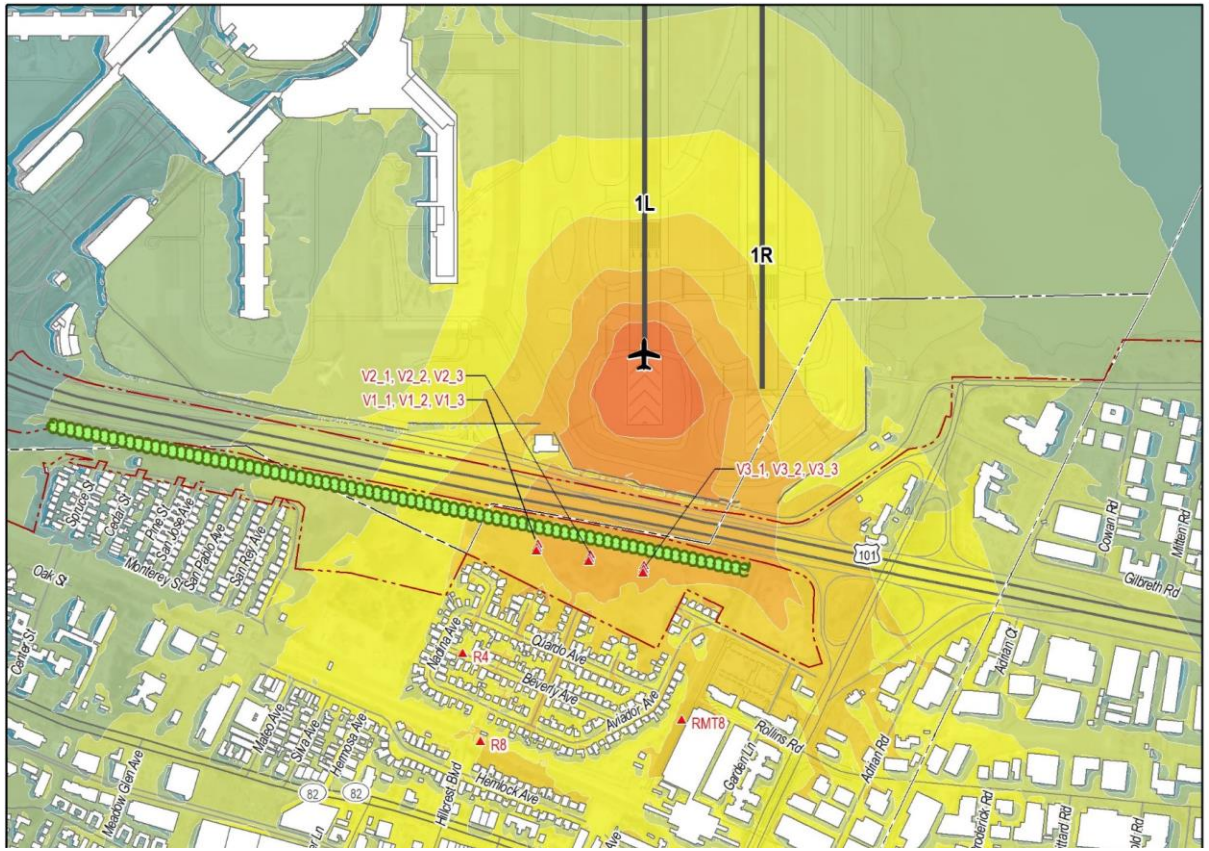
Noise Model Inputs

- Geographic and Land Use Data Sourced From:
  - San Mateo County: location and description of local municipal boundaries
  - ESRI: location of all roadway/highway centerlines
  - Microsoft via GitHub: three-dimensional building footprints with elevations
  - CalTrans: roadway/highway right of way boundaries
  - USGS: three-dimensional digital elevation data; 3-meter resolution
  - SFO: digital Airport Layout Plan (ALP)
  - NearMap USA: aerial photography
- 28 Receptor Locations (Increase of 16 from Scope of Work)
- Three Aircraft Types
  - Boeing 737-800
  - Airbus A320
  - Boeing 77W
- Vegetation
  - 50 feet thick
  - Located on CalTrans right of way, 4,511 feet long
  - 46 feet tall

Model Result Example
A320 Departure from Runway 1L



Existing Condition



Added Vegetation (bright green area)

Summary of Results

- Reduction of noise levels from vegetation is expected to be on the order of 1 dB and only for receptors immediately adjacent to the vegetation.
- Changes of less than 3 dB are barely perceptible
- Vegetation area must be greater than 30 feet wide to begin to provide noise reduction

SFO Staff Comments on HMMH Report

- Comment: The noise model used for the study is not approved by the FAA
  - HMMH Response: The FAA's noise model does not currently include ground noise propagation adequately to include barriers, such as buildings, vegetation etc. The FAA has approved noise barrier analysis using noise models, such as SoundPLAN, which we used for this study.
- Comment: Boeing 767 aircraft is not representative of Boeing 777 aircraft in terms of noise exposure levels
  - HMMH Response: HMMH did not have data for the Boeing 777 aircraft in our SoundPLAN database, so we used the Boeing 767 data, which as shown in the report has different sound levels.
- Comment: The model default meteorological values are not representative of conditions at SFO
  - HMMH Response: HMMH concurs, but the meteorological conditions in the model have only limited effect on sound propagation, as opposed to wind and temperature inversions, so the difference should be minimal, particularly in comparison of the change in noise level.

SFO Staff Comments on HMMH Report

- Comment: Figures 17 and 18 should have the same contours and do not.
  - HMMH Response: Figure 17 shows condition with no vegetation and Figure 18 shows the same condition with vegetation and should have slightly different results as shown in the figures.
- Comment: Remove the recommendation to use vegetation for noise mitigation as the HMMH report findings do not support such a recommendation.
  - HMMH Response: Generally, HMMH concurs that vegetation does not provide perceptible noise level reduction. However, communities seemed interested in trying to find areas to plant thick vegetation.
- Vegetative barriers may attract hazardous wildlife and therefore oppose the use of vegetative barriers near SFO.
  - HMMH Response: HMMH concurs and further research would be required to determine types of vegetation that may not attract hazardous wildlife if such a barrier would be recommended near the Airport.
- Barriers at the height required to break the line of sight to the noise source would likely violate FAA regulations on height limitations near airports and vegetation requires management to maintain the height limitations.
  - HMMH Response: HMMH concurs.

Next Steps

- According to the Roundtable Annual Work Plan
  - The Roundtable Ground Based Noise Subcomittee will:
    - ✓ Complete the GBN study
    - ❑ Recommend next steps to Roundtable membership

Thank you

HMMH
300 S. Harbor Boulevard, Suite 516
Anaheim, California 92805
781.229.0707

MEMORANDUM

To:	Ann Schneider
	SFO Roundtable Member & Ground-Based Noise Subcommittee Chair
From:	Gene Reindel, Technical Consultant to the SFO Roundtable
Date:	February 15, 2023
Subject:	GBN Subcommittee Agenda Item(s)
Reference:	HMMH Project Number: 03-12310.000

This memorandum, at the request of the SFO Roundtable Coordinator, Kathleen Wentworth, provides HMMH's recommended approach to acquiring data in support of the adjacent communities' assertion that the CNEL contours do not adequately include noise from ground-based aircraft operations.

The first step to addressing community concerns regarding aircraft noise is to define the problem. This is more than the community asserting there is a problem. It is documenting the issues, which was adequately accomplished with the HMMH Report "San Francisco International Airport Ground Based Noise Modeling Study" dated January 19, 2021. The Report focused on start-of-takeoff roll operations at SFO, particularly on Runways 1L and 1R, but also on Runways 28L and 28R. While there are more ground-based noise sources at the Airport, the CNEL contours and the Report focus on aircraft operations.

The next step in defining the problem is to acquire data to support the claims that the communities adjacent to SFO (e.g., San Bruno, Millbrae, Hillsborough and Burlingame) are not represented by the CNEL contours because they leave out low-frequency noise content from the aircraft ground operations. To do this we suggest a robust noise measurement program consisting of the increased functionality of the SFO fixed noise monitors to measure A- and C-weighted noise levels and the same functionality using the SFO portable noise monitors to compare results of A- and C-weighted noise levels in areas adjacent to SFO (communities of concern with noise from ground-based aircraft operations) to those areas within the current CNEL 65 dB contours as provided in the quarterly noise reports prepared by SFO and submitted to the State by San Mateo County.

Note that C-weighted noise levels include more low frequency noise than A-weighted noise levels. The difference of the two weightings is often used to determine whether low frequency dominates. If the C-weighted noise level is 10 dB or greater than the A-weighted noise level, acousticians assert that the noise source is dominated by low-frequency noise.

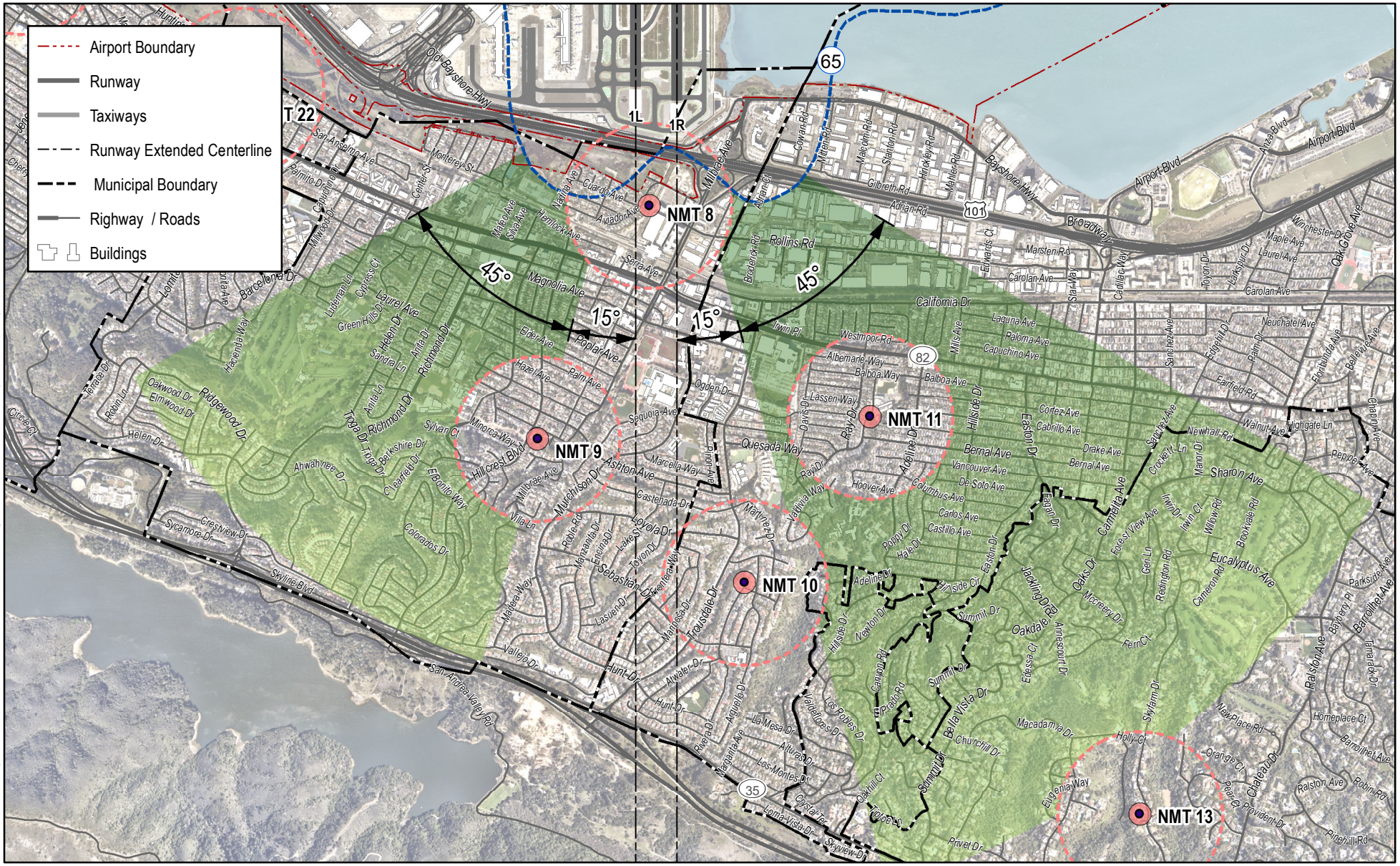
In our opinion, this noise measurement program should be designed by the GBN Subcommittee in close coordination with the Portable Noise Monitoring Subcommittee and the SFO Aircraft Noise Abatement Office as they will be conducting the noise measurements and providing the results of the measurements to the GBN Subcommittee. To assist with the design of the noise measurement program, we have laid out the following four elements for your consideration:

1. Determine which fixed noise monitors to have SFO obtain the A- and C-weighted noise data from aircraft operations to compare results inside the CNEL contours to the results in the adjacent communities.

2. Determine the number and placement of portable noise monitors to capture the representative data from the adjacent communities – perhaps the noise propagation maps from the HMMH Report can be used to help with this task.

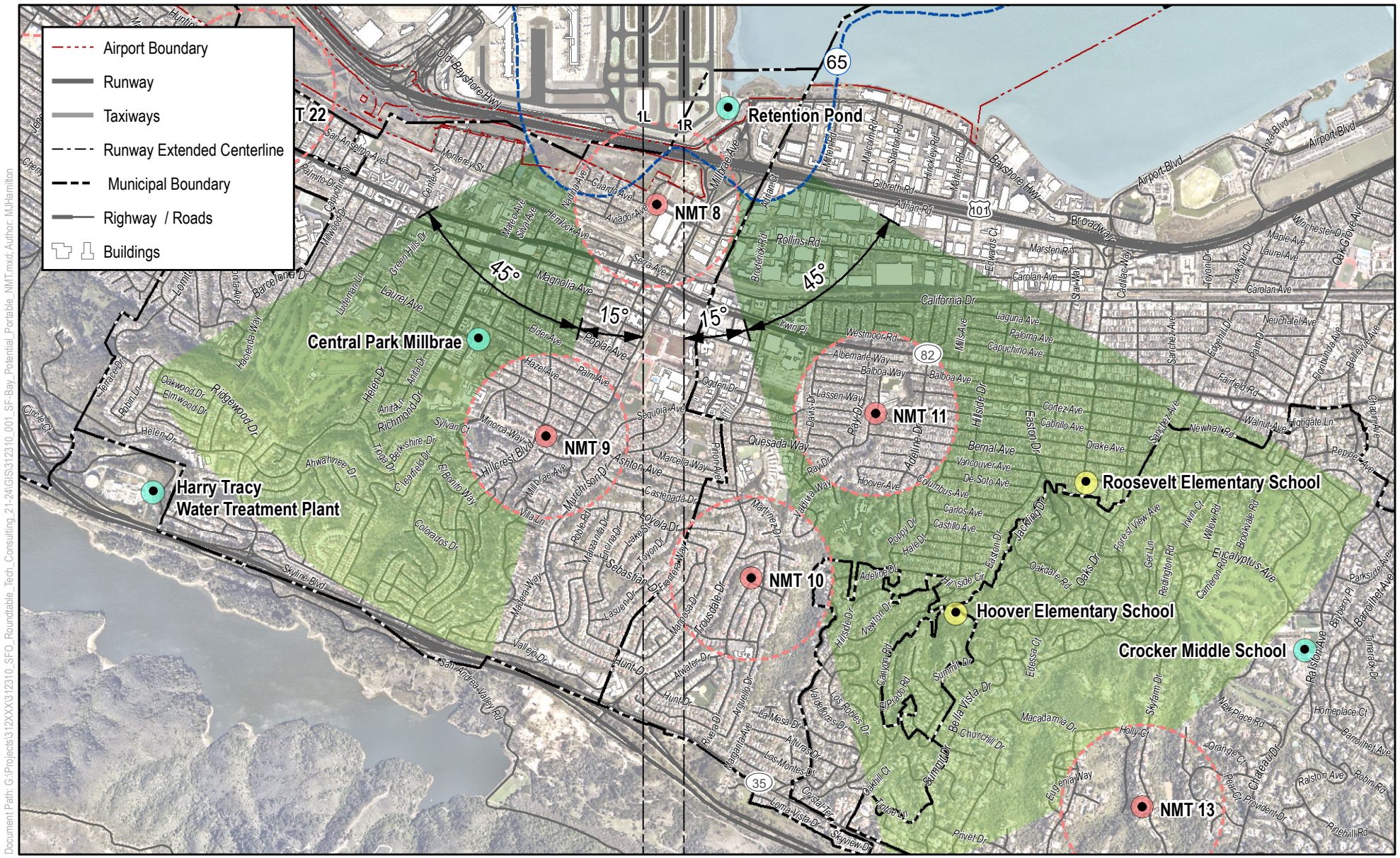
3. Determine the dates to conduct the noise measurements when the SFO fixed noise monitors have the increased functionality to measure and report both A- and C-weighted noise levels, the SFO portable noise monitors are available, and the runways are likely operating in a typical fashion during the day, evening and night as it is those typical operations that dictate the size and location of the CNEL contours.

4. Determine the noise data to be collected and reported by SFO to the GBN Subcommittee to understand the results, such as do the adjacent communities receive more low-frequency noise (higher, lower or the same low-frequency noise levels) than those communities inside the CNEL contours? How do the A-weighted levels compare between the same communities?



San Francisco International Airport
Ground Based Noise Study

SFO COMMUNITY ROUNDTABLE



San Francisco International Airport
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