

**MEETING MINUTES
OAKLAND AIRPORT-COMMUNITY NOISE MANAGEMENT FORUM**

October 20, 2021

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1. INTRODUCTIONS

The October 20, 2021 meeting of the Oakland Airport-Community Noise Management Forum was called to order at 6:34 p.m. by the Forum’s facilitator, Mike McClintock. McClintock noted that this meeting was a regular meeting and that there was a quorum. He welcomed all who were attending online or by smartphone.

Forum Members/Alternates Present

Co-Chair Trish Herrera Spencer, Councilmember, City of Alameda
Co-Chair Walt Jacobs, Citizen Representative, Alameda
Ernest DelliGatti, Citizen Representative, Alameda County
Councilmember Rigel Robinson, Berkeley
James Nelson, Citizen Representative, Berkeley
Councilmember Treva Reid, City of Oakland
Edward Bogue, Citizen Representative, Hayward
Peter Marcuzzo, Citizen Representative, Oakland/Chair, NextGen Subcommittee
Kathy Ornelas, San Leandro and NextGen Subcommittee
Bryant L. Francis, Director of Aviation

Staff Members/Advisors/Officials Present

Alex Katz, Office of Rep. Barbara Lee
Craig Simon, Acting Assistant Director of Aviation
Matt P. Davis, Airport Operations Manager
Diego Gonzalez, Port Governmental Affairs Representative
Jesse Richardson, Airport Noise and Environmental Affairs Supervisor
Joan Zatopek, Port Aviation Planning and Development Manager
Colleen Liang, Port Environmental Supervisor
Rolanda Rogers, Port Airside Operations Assistant
Ruben Hernandez, City of Richmond
Kathy Ornelas, City of San Leandro/NextGen Subcommittee
Rhea Hanrahan, HMMH, Principal Consultant
Sarah Yenson, HMMH, Airspace Consultant
Tim Middleton, HMMH, Consultant
Christian Valdes, Technical Consultant, Landrum & Brown
Valerie E. Jensen Harris, Court Reporter
Michael McClintock, Forum Facilitator

FAA Representatives Present

Raquel Girvin, Regional Administrator, FAA Western-Pacific Region
Bonnie Malgarini, FAA Western Service Area Operations Support Group
Joseph Bert, FAA Western Service Area Operations Support Group
Alana Jaress, FAA Community Engagement Officer

2. ANNOUNCEMENTS

The facilitator announced that it is important to recognize that the proposed Terminal Modernization Project is separate and apart from the role and responsibility of the Forum. Any questions or comments related to the Terminal Modernization and Development Project have to be directed to the Terminal Modernization site. CEQA, the California Environmental Quality Act, provides opportunities for public comment on the proposed project and the project EIR. Port environmental staff are engaged in the execution of the CEQA process for this project. However, he noted, because a lot of people have expressed interest in the proposed terminal project, the Forum will continue to provide interested parties with the dates and

times for such opportunities. However, the Forum should not be expected to become engaged in a separate state-mandated procedure and legal process. The facilitator asked that interested persons seeking information about the project avail themselves of the information available on the project website.

A. Acceptance of 2nd Quarter 2021 Noise Abatement Report

The facilitator announced agenda item 2A as acceptance of the second quarter 2021 noise abatement report, adding that Forum members should have received copies of the report with their agenda materials. He asked if there were any questions or comments before he entertained a motion to receive and file. Hayward representative Edward Bogue moved to receive and file. Motion seconded by Berkeley representative Rigel Robinson. There was no discussion. Motion carried.

B. Noise Forum Annual Dues Update

The facilitator announced that all of the dues for the current fiscal year have been paid in full. He thanked all of the member jurisdictions for their cooperation.

C. Taxiway Bravo Rehabilitation

Jesse Richardson updated the Forum on the status of the Taxiway B rehabilitation project, noting that the project is scheduled for completion on Friday, November 12. He noted also that, due to any adverse weather, the schedule may have to be extended or may change, adding that the Port performs these pavement rehabilitation programs to ensure the airport runways and taxiways remain safe and operationally functional. Jesse apologized for the noise impacts experienced because of the work, but, since this work is done every 10 years or so, people should not have to worry about the lengthy closures of this taxiway for another 10 years unless something catastrophic happens in the meantime.

D. 2021 Fleet Week Operations at Oakland International Airport

The 2021 Fleet Week air operations by the Navy's Blue Angels occurred out of the Oakland Airport during the period of Sunday, October 3 through Tuesday, October 12, said Jesse Richardson. He reported that these operations were completed safely and that the "Blues" safely departed. All in all, Jesse said, he was happy to say that he thought the fans enjoyed Fleet Week activities over the San Francisco Bay. James Nelson asked if there were any noise complaints. Jesse responded that the airport noise office did receive a few noise complaints. He said there were 15 callers from Bay Farm Island, who lodged a total of 27 complaints.

3. APPROVAL OF MINUTES

A. October 20, 2021

The facilitator noted that Forum members should have received copies of the draft Minutes from the October 20, 2021 Forum meeting. He asked if there were any questions or comments? There being no questions or comments, he called for a motion to receive and file. Motion made by Berkeley representative, Rigel Robinson. Seconded by Hayward representative Edward Bogue. The question was called. Motion carried.

4. STATUS OF FAA REAUTHORIZATION ACT OF 2018 NOISE PROVISIONS & AIRPORT NOISE AND CAPACITY ACT HISTORY

Rhea Hanrahan, an HMMH principal, began with a briefing on the FAA Re-authorization Act of 2018, which is currently funding the FAA through 2023. She noted that there were fourteen Sections of the law that she would be discussing dealing directly with noise. So, she began, in Sections 173 and 178, the FAA report found that, while the DNL metric is the FAA'S decision-making metric, other supplementary metrics can be used to support further disclosure and aid the public in understanding the community noise exposure. Consequently, Congress is continuing to pursue further studies, and this is still in the FAA's noise policy for further evaluation, but the current summary and report to Congress has concluded that there's no single noise metric that covers all situations. DNL and, in California, CNEL are still the recommended metrics to be used for all aircraft noise exposure analyses. Supplementary metrics are also a good way to help with understanding noise issues, but they're not used for any regulatory purposes, she noted.

Section 180, requires the FAA to designate regional ombudsmen. These regional ombudsmen have been designated for each of the FAA's nine regions. The newly designated ombudsman for the FAA's Western-Pacific Region, Alana Jaress, is present with us tonight, Rhea said, and she will, hopefully, participate in all of the Forum's meetings going forward and be able to listen to what the community's concerns are, and help to deal with them.

Section 174 requires that airport operators update their noise exposure maps (NEM) and submit a revised map to the FAA if, in an area surrounding an airport, a change in the operation of the airport would establish a substantial new noncompatible use, or would significantly reduce noise over existing noncompatible uses, that is not reflected in either the existing conditions map or forecast map currently on file with the agency. Ms. Hanrahan noted that many FAA regions and ADOs (Airport District Offices) already have this policy in place, so there would be no practical change to airports from this provision. Most airports already update their maps on a regular basis, and Oakland complies, in that it produces regular noise contours as part of its Title 21 obligations under the California Code of Regulations.

Section 175 addresses community noise concerns. When proposing a new area navigation departure procedure, or amending an existing procedure that would direct aircraft between the surface and 6,000 feet above ground level over noise sensitive areas, the FAA has to consider the feasibility of dispersal headings or other lateral track variations to address community noise concerns, if (1) the affected airport operator, in consultation with the affected community, submits a request to the FAA Administrator for such a consideration; (2) the airport operator's request would not, in the judgment of the FAA, conflict with the safe and efficient operation of the national airspace system; and (3) the effect of a modified departure procedure would not significantly increase noise over noise sensitive areas, as determined by the FAA Administrator.

Rhea noted that Massport is currently pursuing the dispersal of RNAV procedures as part of a study being conducted for Boston-Logan International Airport. They met back in June where they presented the recommendations, but the study has a potential to shift noise and frequency of aircraft operations, and the FAA is currently undertaking an extensive review of the recommendations. There has been no decision as yet, and the reason why this might be of interest is because, depending on what that decision is, it could influence how other airports approach Section 175. So, she said, HMMH is monitoring the situation.

Section 181 requires the FAA to exercise leadership in the creation of federal and international policies, regulations and standards relating to the certification and safe and efficient operation of supersonic aircraft. So, she said, the FAA has already published a report to Congress, and the Airport Council International (ACI) has submitted comments to the FAA's Notice of Proposed Rulemaking

for noise certification of supersonic airplanes, stating it is critical that the FAA considers the cost to airports and communities for increasing noise impacts. Additionally, their recommendation is that the FAA must also resolve the technical concerns of testing and certification. In addition, ACI member airports oppose the FAA's proposed noise certification standards for supersonic aircraft because the proposed standards are less stringent than the current Stage 5 noise certification standard for commercial aircraft, and they want them to match or be equivalent to those standards.

Section 186 requires the U . S . G o v e r n m e n t Accountability Office (GAO) to conduct a study evaluating the potential phase-out of Stage 3 aircraft. Later in this presentation, she said, she would present a bit more detail on this, adding that the provision also requires confirmation with airports and community stakeholders. Stage 3 aircraft are older and include MD80s and some B747s. For the most part these aircraft have already been retired out of the fleet mix, and there wouldn't be a restriction on mandated retirement. She said she had a later slide that would explain this.

Section 187 requires the FAA to complete an ongoing review of the relationships between aircraft noise exposure and its effects on communities. This one is really known for the recent Neighborhood Environmental Survey (NES). There was a presentation to the Forum a while ago on the NES; and notices went out that the FAA published the NES on January 13, 2021, and a webinar was hosted by the FAA in February 2021. The NES results showed that approximately 66 percent of the respondents were highly annoyed at 65 DNL compared to the 12 percent postulated in the old Schultz curve used by the FAA since the 1970s. As a result of the over 4,000 comments received on the NES, the FAA is currently assessing the ramifications of these findings with respect to its national noise policy. The Forum, along with the ACI, as well as numerous other airports and airport noise forums and area residents were among those responding to the FAA's request to be informed. The FAA is currently working with the Federal Mediation and Conciliation Service, to assist with conducting a review of its noise policy. So, she said, there have been no policy changes due to the findings of the NES, and she wanted to let everybody know that information and the 4,000 comments will contribute to the scope of the FAA review, and that HMMH will keep everybody in the Forum informed as things change and progress.

Ms. Hanrahan noted that there were some other sections that are applicable to Oakland. Section 176 requires the FAA to prepare a report containing, first of all, recommendations for improving community involvement for NextGen projects and Metroplexes like the NorCal Metroplex, (2) discussions on how and when the FAA will engage airports and communities and PBN (Performance Based Navigation) proposals and (3) lessons learned from the NextGen project. An example is a recent south Florida Metroplex where a lot of those recommendations and improvements and lessons learned have been applied. This is a new Metroplex that was just implemented in very congested airspace, much like Oaklands is.

Section 179 requires the FAA conduct a study to review and evaluate existing studies and analyze the relationship between jet aircraft approach and takeoff speeds and the corresponding noise impacts on the communities surrounding the airport.

Section 189 required the FAA to engage a university to conduct a health study in a number of metropolitan areas, so, as a result Boston, Chicago, the District of Columbia, New York, the Northern California Metroplex, Phoenix, the Southern California Metroplex, Seattle and other such areas have been identified by the FAA for such study. The plan is to focus on incremental health impacts of residents living partly or wholly underneath flight paths most frequently used by aircraft flying lower than 10,000 feet, including both takeoff and landing, an assessment of the relationship between perceived increase in aircraft noise, including the results of a change in flight paths that increased

the visibility of aircraft from certain locations, and an actual increase in aircraft noise, particularly in the areas with variable levels of non-aircraft-related ambient noise.

Finally, there is Section 190, she said, which provides for FAA grants at up to six airports to carry out pilot environmental mitigation programs looking to see if they can have any measurable reduction or mitigation of aviation impact on noise, air quality or water quality at the airport and within five miles of the airport. So, part of that is a federal share of the project costs that would be 50 percent. It must be carried out by entities that include two or more of the following businesses: an educational or research organization; state or local government; and/or federal laboratories.

Ms. Hanrahan introduced the next part of her presentation as being at the request of the Forum for a briefing on the mandatory restrictions and limitations on noise abatement measures in the Airport Noise and Capacity Act (ANCA) of 1990. ANCA is codified under Title 14 of the Code of Federal Regulations, and it regulates the adoption and implementation of airport use restrictions. ANCA required the FAA to establish a phase-out of Stage 2 aircraft that were over 75 thousand pounds and to develop a national aviation noise policy. The FAA's 1976 noise policy is still in effect. ANCA also establishes regulations regarding access restrictions.

There are two ways for an airport to impose a noise or use restriction: One is to obtain the agreement of all airport users affected by the proposed restriction; and the second is to obtain FAA approval. So, she said, both are pretty daunting challenges because the FAA will approve a restriction through the 14 CFR Part 160 process only if it meets a number of requirements. These requirements are that the restriction is reasonable, non-arbitrary and non-discriminatory. So, you can't claim a certain carrier is only operating at 2 a.m. and shouldn't be allowed to operate there because that would be considered discriminatory. They're able to use the public airfield when they want. The restriction also needs to make sure that it does not create an unreasonable burden on interstate or foreign commerce; is not inconsistent with maintaining the safe and efficient use of the national airspace; does not conflict with U.S. law or regulations; and does not create an unreasonable burden on the national aviation system. So, she explained, if all of a sudden, San Francisco or Oakland were to restrict access to their airports, you would have all of those flights needing to go somewhere. They could, theoretically, overload the San Jose Airport; so that would be an unreasonable burden on the national aviation system and on the community members at that location. Additionally, it must be demonstrated that an adequate opportunity has been provided for public comment before any use restrictions can go into place.

In addition to the above requirements, there must also be a benefit to the non-compatible land uses identified in a noise exposure map that are within the 65 DNL contour. Hence, through the 14 CFR Part 150 process, the Port could address non-compatible land use issues without violating the limitations on use restrictions under Part 161. However, the Oakland Airport does not currently have any residential land uses within its DNL/CNEL 65 dB noise contours. If there were any such noncompatible uses, the Port could undertake noise abatement measures that would mitigate them either through sound insulation or other non-restrictive measures.

Moving on to ANCA, Ms. Hanrahan noted that the act mandated the phase-out of Stage 1 and 2 aircraft by the end of 1999; and that, as she had stated earlier, there is no Stage 3 phase-out planned right now, but many of these aircraft have already been retired by natural fleet progression. Any new aircraft that are being built now have to meet stricter noise requirements. So, she said, there's Stage 3, 4 and 5, and current aircraft being built need to meet Stage 5 requirements. She showed a graphical exhibit illustrating aircraft representative of the various 14 CFR Part 36 stage requirements.

The regulations regarding airport use restrictions are based on noise, she said. Conforming to the use restriction regulation entails a rigorous process; and no airport has adopted a Stage 3 restriction since this was implemented in 1991. Moreover, she added, few airports have been successful in establishing voluntary agreements by the threat of pursuing a mandatory one. So, it's better to have everybody come together and agree to what's best for all parties involved, rather than by trying to mandate any restrictions. Rhea added that no airports have undertaken a Part 161 study for several years, or have been successful at phasing out operations by larger Stage 3 aircraft. A few airports have tried, but it is a long and costly process, and the end result was not what they were hoping to achieve.

Ms. Hanrahan completed her presentation and asked for questions or comments. Bill Harrison of Hayward asked that the contact information for the new FAA regional ombudsman be put back on the screen. Alana Jaress provided her contact information for Mr. Harrison. Berkeley representative James Nelson asked if all airports had to comply with the conditions imposed by the FAA. The facilitator answered they're called standard grant assurances. They are standard provisions in FAA contracts, and if an applicant expects to receive FAA grant funding, it must agree to be bound by these assurances. Joan Zatopek, Port Aviation Planning and Development Manager, added that the Port of Oakland applies for several grants on an annual basis, and it agrees to live by those grant assurances for each of the grant offers.

5. NEXTGEN RELATED NOISE CONCERNS

A. Subcommittee Report

Peter Marcuzzo, Chair of the Forum NextGen/Metroplex subcommittee introduced himself, and noted that the subcommittee had met recently with FAA technical subject matter experts. Several issues were discussed, including the WNDSR arrival and the HUSSH departure. He noted that the FAA has decided that they are out of ideas as to where and what can be done to move or modify these two procedures. However, these issues are not closed with respect to the Forum subcommittee, which is working on further alternatives to present to the FAA for its review and consideration. The TRUKN departure procedure was also discussed. One of the things asked of the FAA was the status of the development of automated software that would allow for departures on multiple headings. The FAA said that this was still a work in progress, and it is unknown whether or not it can be implemented. So, he said, we're still waiting for news on this as things develop.

As for the Cal State and the San Lorenzo visual approaches, the FAA is waiting for the Forum to advise them on which way we want to go on that; so, we had HMMH produce an analysis of the RNAV RNP Runway 30 approach into Oakland for the jets, and it looks like more and more of the jets are using that approach from the north and from the east right now—about 20 or 30 percent according to the HMMH report. The RNP procedure does keep the track over a somewhat vacant area, if there is any land you can call vacant in the Bay Area, and it keeps the tracks south and west of the Hayward Airport and away from the downtown areas of San Lorenzo, Hayward, and San Leandro. While the subcommittee discussed more on this, they're going to review reports by Jesse about what kind of noise complaints we've had in the area, and we'll take a look at other information we might have and review this further and see if we should continue to pursue establishment of a charted visual approach. He noted that the FAA did say that under newer procedure rules they are hesitant to establish new charted visual approaches due to new requirements. So, Peter said, we'll take a look at it, and review it.

Community resident Tomas thanked Peter and the subcommittee for their work with the FAA. He alluded to Peter's statement that the FAA was waiting to hear back from the Forum with any new suggestions or options to resolve the WNDSR debacle; basically, that WNDSR is currently at the highest elevation and the quietest area in the Oakland and Berkeley hills. Yet, Tomas said, if he were to look east, or to walk about 500 feet from his house, there is vacant open land with no inhabitants. All there is are wild turkeys and coyotes, he noted. So, when he hears the FAA say that they need a suggestion on where to move WNDSR, it is pretty simple. All they have to do is move it east by about half a mile or one mile, and the noise problem is gone.

Lastly, Mr. Marcuzzo announced that, going forward, Alameda City Councilmember and Forum Co-Chair Trish Herrera Spencer would be the facilitator for the NextGen subcommittee. Peter said that Trish brings a lot of knowledge and experience to the subcommittee, and they are looking forward to having her on board. Co-Chair Spencer thanked Peter for all his hard work for the Forum. She said, she knows this is a huge community effort, involving the Port and airport, and the FAA, as well; and that working together is the only way we can hope to make any improvements for people that really need it. She said, she really appreciates this opportunity and is looking forward to supporting all of the efforts to address these serious noise issues.

The facilitator said he wanted to thank Peter for all the hard work he put into this over the last several years; and is hoping that his expertise is still available to the subcommittee, the Forum, and the larger community.

B. FAA Noise Forum Meetings Update

Jesse Richardson reported that there have been no meetings.

C. FAA Regional Administrator's Update

FAA Western-Pacific Regional Administrator, Raquel Girvin began by thanking Peter Marcuzzo for his work, and that she and her staff have appreciated working with him over the years on the NextGen Subcommittee. She next introduced Ms. Alana Jaress as the new community engagement officer, saying that they are very excited to have her as the permanent CEO or community engagement officer. Alana comes to the FAA from the Department of Defense and will be working Northern California and Hawaii issues. She has a lot of experience, and we're looking forward to her involvement in working with the Forum on these issues.

Bonnie Malgarini said the NextGen Subcommittee has wanted to address what appeared to be a drift east of course on the Oakland 5 departure, and within the timeline provided by the subcommittee, they were able to find that, when the runway was re-numbered, due to the magnetic variation updates, the departure procedure on the plate actually said "Fly runway heading," those exact words. And now, with the technology and all the updates, they changed "Fly runway heading" to "Fly heading 296." So, before, they were flying on a 290 heading, and now they are flying on a 296 heading. The possibility of changing this initial heading to be more westerly with both the FAA flight procedures team and the local air traffic controllers, and they both agreed that it is possible, and they have asked the airport to submit a request into the IFP Gateway. Bonnie said she was pleased to see that Matt Davis had submitted the request last week. However, she noted, it's going to take a while to get through the whole process -- 18 to 24 months -- but it's in the system.

Bart Lounsbury thanked the Forum members and the folks who had input into the process of trying to remedy the NextGen situation over the last several years. He said that he knows that this has borne no fruit so far, and it's sometimes hard to maintain a sense of optimism. But as a community member who is

affected on a daily basis, it's shocking and disturbing to us that nothing has changed in that time period, but know that we still care and that your efforts are valued, and we hope that, ultimately, this process you're engaged in will bear fruit for us, whether that's through the FAA's actions or whether Congress actually has to step in at some point to remedy the situation. But thank you for your efforts. Matt Pourfarzaneh thanked the FAA and members of the NextGen subcommittee, along with anyone else who supported the efforts to see changes made to the WNDSR procedure to reduce noise. The facilitator thanked Administrator Girvin and her staff for their efforts on behalf of the Forum.

6. PUBLIC COMMENT

In advance of any public comments on items not on the night's agenda, the facilitator reiterated the statement he read into the record earlier. The statement being that the Forum will not be dealing with issues related to the Terminal Modernization Project. That project is a separate and distinct project being carried out under the California Environmental Quality Act in the form of an EIR, or environmental impact report. There is a web site for the Terminal Development Program. Facilitator McClintock asked the project manager if there are any updates on the project for the Forum. Ms. Colleen Liang replied that there were no updates at this time.

The facilitator opened the public comment period. There being no one wishing to comment on items not on the agenda, the facilitator closed the public comment period.

7. NOISE OFFICE REPORT

The facilitator announced that Jesse Richardson would begin by recapping the action items from the July 21, 2021 Forum meeting:

A. Update on Action Items from July 21, 2021 Meeting

Jesse Richardson began by noting that the action items from the last meeting were NextGen-related items. So, as Bonnie Malgarini mentioned tonight, Matt P. Davis, the airport's operations manager, has submitted a request through the FAA IFP Gateway to amend the Oakland 5 departure procedure. As Bonnie mentioned, currently it's 296 degrees from Runway 30 to the west. The estimated shift that was asked for in the IFP Gateway was a 5-10-degree shift. Of course, this effort is to minimize the noise impacts on the area of Alameda adjacent to the farther end of the main runway. This would help benefit Alameda shoreline folks in regards to the HUSSH noise abatement procedure. The Port is working with a consultant to explore a way to turn the aircraft more sharply on the HUSSH. Hopefully, we will have more information for the North Field South Field Research Group meeting in December. Some potential solutions may revolve around procedure development, while others may revolve around aircraft performance issues that focus on how aircraft fly the existing published procedure. But that's something we'll have to work with the consultant on, he said.

Other action items from the North Field South Field Research Group meeting in September, include Tommy Singleton is the new air traffic control tower manager. He starts work here at the beginning of November. The current manager, John Berger, is retiring. There was an action item to contact the chronic non-compliant operators off the North Field. The Noise Office reached out to the non-compliant operators and asked for their cooperation and help in using the main runway when possible. The facilitator noted that this action item was initiated as a result of a suggestion by a member of the public at the July Forum meeting. Since then, Jesse has been in contact with the person, provided him with relevant information, and signed him up on Viewpoint; he is already lodging complaints.

B. Viewpoint Update

Jesse began the update by thanking Rolanda Rodgers, and Dion and the other Port team members for assisting the Noise Office with rolling out a new community advisory notification portal. This new advisory notification portal provides the community with easier access to information about aircraft noise-related matters such as airfield construction, and other airport activities that could impact airport traffic operations. He said that there are three ways you can self-register. The first is, with your cell phone. Text 888777 and follow the hyperlink and the auto response. The second method is to go to the web site www.oaknoise.com, and the third method is to visit [flyquiетоak](http://flyquiетоak.com), the Noise Office site, click on the banner and then follow the directions.

8. NOISE NEWS AND UPDATE

Christian Valdes of Landrum & Brown began his presentation with a very interesting report from the Government Accountability Office on aircraft noise and FAA public outreach, noise metrics and PBN in general. It's very short, but comprehensive and an easy read. He recommended that Forum members and the public read the report. It can be found at: [*Aircraft Noise: FAA Could Improve Outreach Through Enhanced Noise Metrics, Communication, and Support to Communities* / U.S. GAO.](#)

Christian provided the following summary of the report's findings. At Congress's request, the GAO performed a review of FAA limitation of PBN procedures with regard to noise and FAA-related public outreach activities. The concise 68-page report describes the FAA's PBN implementation and environmental review process and explains how the DNL metric is used to assess aircraft noise impacts. The GAO analysis showed, because the DNL metric combines the effects of several components of noise into a single metric, it does not provide a clear picture of the flight activity or associated noise levels at a given location. Valdes showed a graphical illustration showing that under DNL "100 flights per day can yield the same DNL as one flight per day at a higher decibel level." The GAO recommends that, since no single metric can convey different noise effects, using additional metrics such as changes in the number of overflights could help the FAA identify and address potential noise concerns. Most of the community stakeholders the GAO spoke with said that information on potential noise impacts was not clear enough to understand. Additionally, community stakeholders were frustrated and unclear on how to productively engage with the FAA to address noise concerns. The FAA has some guidelines on this process, but it is unclear about the extent to which communities can expect assistance from the FAA in proposing changes to flight paths that cause noise concerns. To address these issues, the GAO recommends the FAA use supplemental metrics during public outreach and to clearly communicate the FAA's expected role in the post-implementation process.

Next, he said, the House of Representatives approved an appropriation bill that provides the FAA with \$18.9 billion dollars for airport improvement programs, aircraft noise mitigation, and comprehensive community engagement. The report accompanying the bill requires the FAA to provide an update on its aviation noise policy review process within 90 days of the enactment of this bill. Back in May of this year, he noted, the FAA announced it is bringing onboard the Federal Mediation and Conciliation Service to help design a framework and process for reviewing the FAA's aircraft noise policy, and that it would begin this process during the summer. However, the FAA and the FMCS have yet to finalize their agreement. Additionally, the House Appropriations Committee was critical of the FAA's aircraft noise work in the areas of research and community engagement, finding that the agency should make the effects of aircraft noise and community engagement more transparent and inclusive.

On the NASA front, as part of its effort to reduce dependence on fossil fuels for air transportation, they tested an electronic motor that can produce 1 million watts that could be used on future environmentally-

friendly and economically-sustainable aircraft. It could be used to turn propellers or large engine fans or as an electricity generator. Two of these motors could fully power a small six-passenger aircraft or assist jet engines on aircraft carrying at least 150 passengers. This hybrid concept could potentially reduce jet fuel burn emissions and noise. The Japan Aerospace Exploration Agency (JAXA), and Boeing are partnering to develop airframe noise reduction technology for medium-sized aircraft that could carry from 200 to 400 passengers. Noise during takeoff has been reduced over the years. However, noise reduction from aircraft on approach has remained stagnant over the past 20 years or so. This new technology will focus on noise reduction on high lift devices like flaps, slats and landing gear. NASA expects to provide noise reduction concepts by March of next year and testing in the year 2023 and beyond.

On the urban air mobility (UAM) front, the FAA proposed the first noise certification standards for drones; specifically, for the "Matternet" model M2. It's a package delivery drone that weighs 29 pounds and carries a load of 4 pounds and flies at altitudes under 400 feet. The proposed certification standard sets noise limits at 78 decibels at a flyover altitude of 250 feet. NASA will perform a study on the human response to UAMs which will focus on larger UAMs that can carry payloads between 800 to 1,000 pounds and fly under 3 thousand feet. The goals are to attain a wide range of vehicle sounds, to provide insight to human response, to create an open database of human response to support follow-on studies by NASA or others, and to perform phase 1 testing on approximately 60 subjects. NASA will use an online testing platform that allows test subjects to listen to test sounds over their own speakers or headphones and register the annoyance rating to each of the sounds. For about a year and a half now, Christian said he has been bringing news about the preparation of an air mobility national campaign. A major milestone was reached when Joby Aviation became the first company to run through the noise measurement tests. They tested their aircraft at Joby's facility in Big Sur and measured the noise levels which will later be compared to noise from helicopters, drones and other aircraft and the ambient or background noise in urban communities. The measurement results will be released later this year. The FAA certification of Joby aircraft is planned to be complete by 2023. These aircraft will be expected to be in commercial passenger service by 2024.

The FAA began a national sleep study, which will be conducted by the University of Pennsylvania Medical School in collaboration with HMMH. Some 400 people from 77 communities around U.S. airports will participate in a five-day, in-home study. Participants will record nighttime indoor sounds using a portable audio recorder and wear a small device that collects heart rate and movement data over five consecutive nights. They will also complete morning questionnaires about their sleep and their quality of sleep. The collected data will be used to create an exposure response model between aircraft noise and sleep disturbance. The estimated completion of the study is 2024. If anyone would like to participate in the study, they're currently recruiting at clinicaltrials.gov.

Next, the FAA Continuous Lower Energy Emissions and Noise (CLEEN) program is a partnership that began in 2010 and is a key part of the strategy to attack the global challenge of climate change and lower the impact that aviation has on communities. Honeywell, Pratt & Whitney and Boeing matched the FAA investment. Companies involved in phase 3 of the CLEEN program will receive \$100 million to develop next generation sustainable aircraft technologies that will reduce aircraft fuel use, emissions and noise as part of the Biden administration's goal to help American aviation reach net zero emissions by 2050. The CLEEN program technologies developed so far in phase 1 and 2 are estimated to reduce carbon dioxide emissions equivalent to removing 3 million cars from the road and saving 36 billion gallons of fuel by 2050. The FAA has already invested \$225 million in phases 1 and 2. Some of these accomplishments include enhanced engine combustion, advanced aircraft wings, fuel efficient algorithms for flight management systems, and alternative jet fuels. The goals are to reduce carbon dioxide by 20 percent, nitrous oxides by 70 and lower particulate matter compared to ICAO standards and to reduce noise by 25 decibels relative to the FAA stage 5 and ICAO standards.

ICAO phase 3 goals include quiet systems, landing gear, advanced nacelles, exhaust acoustic technology, efficient fans and acoustic liners, all of which can reduce noise up to about 2 decibels. General Electric's first unducted or open single fan engine concept is optimized to reduce noise by 13 decibels below the FAA stage 5 bench mark. This engine will enter service in the mid-2030s. Christian showed conceptualizations of what actual aircraft might look like with open fan engines. Another CLEEN project that could potentially reduce aircraft noise by perceptible levels is the Boeing noise-optimized algorithm, also called Intelligent Operations. Where feasible, it would allow the dispersion of arrivals and departures while maintaining efficient and precision navigation facilities. Boeing will work with the FAA on implementing these procedures and techniques in a way that does not require new standards or procedure approvals that work on more challenging techniques that involve new procedures, community input and add data processing to specific airports. The facilitator commented on the last slide, saying that this could be the answer to the community's concerns over both HUSSH and WNDSR 2. The implication of what I'm reading here, he said, is that there will be the ability to disperse arrival and departure paths under new NextGen procedures that aren't quite on the drawing board yet.

Co-Chair Herrera Spencer asked if it would be possible to have these slides attached to the Minutes, or somehow included, so that we can have them? The facilitator asked both Christian Rhea to send him copies of their presentations, so that he could get them out to the Forum members and other interested parties. Facilitator McClintock thanked Mr. Valdes for a very good job, as usual.

9. CONFIRM NEXT MEETING DATE

The next meeting is scheduled for January 19, 2022.

10. NEW BUSINESS/ADJOURNMENT

Facilitator McClintock again thanked the FAA, elected officials, and all who participated in tonight's meeting.

The meeting was adjourned at 8:45 p.m.