

LOS ANGELES INTERNATIONAL AIRPORT/ COMMUNITY NOISE ROUNDTABLE WORK PROGRAM

Revised January 10, 2018

INTRODUCTION

The Mission of the LAX/Community Noise Roundtable is clearly articulated in the Roundtable's Bylaws. The mission as stated in Article II of the bylaws is:

"The Los Angeles International Airport/Community Noise Roundtable (hereinafter referred to as Roundtable) is an association of local communities, Los Angeles World Airports (LAWA), the Federal Aviation Administration (FAA), and airline industry representatives. These parties are interested in participating in an interactive forum to address current aircraft noise issues associated with aircraft operations to, from and at Los Angeles International Airport. It is the intent of the Roundtable to identify noise impacts in the surrounding communities and to recommend courses of action that could reduce noise over affected communities without shifting noise from one community to another." (Emphasis added)

As stated, the Roundtable's primary mission is twofold:

- 1. To identify noise impacts in the surrounding communities, and
- 2. To recommend courses of action that could reduce noise over affected communities.

This Work Program presents the agreed upon actions identified by the Roundtable designed to accomplish one, or both of the aforementioned goals. The Work Program identifies the noise issue, a description of the impact, the areas affected by the noise issue, and the activities to be conducted by the Roundtable designed to address the targeted noise issue. In addition, the Work Program identifies the agency/organization (if any) with primary responsibility for completion of the activity, and assigns a priority for accomplishment of the work.

Work Program items are reviewed on an on-going basis at Roundtable meetings. Additionally, the entire Work Program is reviewed on an annual basis to evaluate progress of activities, make course corrections, and to add/remove actions as agreed upon by the Roundtable.

The effectiveness of the Roundtable's efforts depends on the interaction among the partiesat-interest represented by the airport owner, the FAA, the airline industry and community representation.

A. AIRCRAFT OPERATIONS

A1. FAA Southern California Airspace Redesign Project

Impact Description:

FAA initiated the So. Calif. Airspace Redesign Project (SCARP) to improve the safety and efficiency of the Southern California airspace. The FAA began initial work on the project and then stopped the project due to funding cuts.

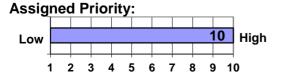
Areas Primarily Affected:

Global issue affecting all sectors

- Roundtable sent two letters in 2006 to FAA Administrator requesting restoration of funding. FAA responded but did not provide a definitive answer as to whether or not funding will be restored.
- LAWA provided information update on the East Coast Airspace Redesign Project in March 2008.
- Roundtable issued 3rd letter, in February 2009, to FAA Administrator requesting restoration of funding. FAA did not provide a definitive answer as to whether or not funding will be restored.
- In September 2010, HMMH provided a presentation on the airspace redesign
 project to show the possible effects it has on surrounding communities; in most
 cases, the project resulted with narrower flight paths, which could cause more noise
 exposure for residents located directly under the aircraft routes while providing noise
 relief for others.
- In November 2011, LAWA indicated that the FAA has started the conceptual design work for the Optimization of Airspace and Procedures in the Metroplex (OAPM) project for the Southern California area. The purpose of this project is to optimize flight procedures and to improve airspace efficiency in Southern California where possible and where it would not require the preparation of an EIS. It is possible that some of the issues that would be addressed in a comprehensive airspace redesign may be included in this OAPM project. LAWA invited the FAA to present information to the Roundtable which the FAA agreed to do so when it is further along in the project.
- In July 2012, LAWA reported that funding is available for the Optimization of Airspace and Procedures in the Metroplex project which is similar to the Airspace Redesign project.
- In September 2012, Roundtable sent a letter to FAA to recommend specific changes to various aircraft flight procedures at LAX that may help reduce noise for FAA's consideration in the OAPM project. FAA responded in January 2014 indicating that it has reviewed the Roundtable's recommendations and plans to discuss specific options with the Roundtable at a future date.
- Throughout 2013, FAA provided periodic updates on the progress of the OAPM project to the Roundtable. FAA indicated they would continue informing the Roundtable as the project moved forward. As of June 2014, the procedure design process of the project was 100% complete. Environmental review for the project was underway and was expected to be completed by mid-2015.
- In January 2014, the accepted abbreviation for Optimization of Airspace and Procedures in the Metroplex was changed from OAPM to simply Metroplex or SoCal Metroplex, which are the terms used going forward.

- In June 2015, the FAA released the Draft Environmental Assessment (EA) for the SoCal Metroplex project and provided a 30-day public comment period. Subsequently, the Roundtable submitted a letter to the FAA requesting a 30-day extension. After receiving a number of requests from other parties as well, the FAA extended the public comment period for 60 days followed by another 30 days resulting in a total public comment period of 120 days. The final deadline for public comments was October 8, 2015.
- In July 2015, the Roundtable Facilitator reviewed some of the key proposed flight procedures of the SoCal Metroplex with Roundtable members and pointed out the potential noise implications of the project. The facilitator also reviewed the extent to which the Roundtable's September 2012 recommendations were incorporated into the Metroplex project and noted that only one of the proposed procedures may partially address the Roundtable's recommendations. The proposed North Downwind Required Navigation Performance (RNP) arrival procedures may partially reduce overflights for Monterey Park.
- In September 2015, the Roundtable submitted a comment letter to the FAA on the SoCal Metroplex project to express concerns about the potential noise implications, to provide additional suggestions on certain proposed procedures, and to comment on other related issues.
- In July 2016, LAWA provided a brief overview of the SoCal Metroplex project covering a few key flight procedures, anticipated upcoming project schedule, and efforts made by Roundtable and LAWA thus far.
- In September 2016, the Roundtable Facilitator covered highlights of the Final SoCal Metroplex Final EA and the Finding of No Significant Impact/Record of Decision (FONSI/ROD) that were released on August 31, 2016. The FONSI/ROD enables the FAA to begin the phased implementation of proposed procedures beginning in November 2016 and continuing through April 2017. He also covered procedure changes that the FAA made since the Draft EA was published, and reviewed the FAA's responses to the Roundtable letters (dated Sept. 2012 and Sept. 2015).
- In October 2016, FAA representatives attended and participated in the special Roundtable meeting to discuss the details of the FAA's responses to the two Roundtable letters pertaining to the Metroplex project. The FAA covered each point of the Roundtable comment letters, reviewed each of the Roundtable-recommended noise abatement measures, and explained whether or not the measures were addressed as part of the project. The FAA also reviewed those procedures that were scheduled for implementation in November 2016.
- In March 2017, LAWA reviewed and discussed some of the changes associated with key Metroplex flight procedures that were scheduled for implementation in March and April 2017. LAWA also noted potential effects on residential communities associated with those procedures.
- In May 2017, FAA provided an update on the Metroplex Project indicating that most Metroplex procedures were implemented with the exception of RNP procedures since these procedures require additional components such as the Terminal Sequencing and Spacing (TSAS) tool and certain aircraft equipment in order to be fully functional. No expected timeframe was provided for RNP implementation.

Status: Active



A2. East Departures between 12 AM and 6:30 AM during Over-Ocean or West Ops

Impact Description:

Aircraft departing to the east between Midnight and 6:30 a.m. when LAX is not in East Ops create a serious noise disturbance to residents of numerous communities that are subjected to these overflights.

Areas Affected:

Eastern, Southern and Northern Sectors

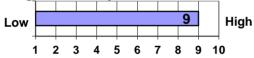
- LAWA provided data to the Roundtable that these operations occur.
- In July 2002, Roundtable sent a letter to LAWA to request assistance in arranging for airline representatives to participate in the Roundtable for discussion on east departures.
- Chief Pilots of the top 5 airlines committing these departures attended the September 2002 Roundtable meeting.
- Roundtable requested LAWA to initiate Part 161 Study to eliminate these departures.
- LAWA opened Part 161 Study in June 2005.
- Study was on hold in March 2007 pending preparation of new fleet mix forecasts that are consistent with LAX Specific Plan Amendment Study. Part 161 consultants prepared the modeling using the new forecasts.
- The fleet mix forecast was finalized on October 1, 2008 and the work on the Part 161 Study has recommenced.
- HMMH provided an update on the Part 161 Study in April 2011.
- In September 2011, LAWA started sending notification letters to air carriers who
 departed east during Westerly or Over-Ocean Ops to request them to fill out a form.
 The form requests specific information about each operation including the reason for
 the east departure, wind speed and direction, weight of the aircraft, and other
 relevant information. The intent of this voluntary measure is to discourage air
 carriers from departing east when possible.
- HMMH provided updates on the progress of the Part 161 Study in March and November of 2012.
- In December 2012, Roundtable submitted an official comment letter to LAWA during the Part 161 Public Review/Comment Period to express its support and appreciation of LAWA's efforts to complete the Part 161 Study.
- LAWA completed the study and submitted the application to FAA in January 2013.
- In May 2013, LAWA reported that the FAA determined the Part 161 application to be incomplete and requested LAWA provide additional information for five areas where the FAA felt the submittal fell short of the Part 161 requirements. In June 2013, LAWA submitted the revised information to FAA for review, which they again determined to be incomplete and provided additional direction. LAWA again worked with the FAA to ensure that the submittal would meet all of the Part 161 requirements.
- In July 2014, the Roundtable Facilitator reported that the FAA deemed LAWA's Part 161 application complete and the FAA planned to subsequently render a decision approving or disapproving the proposed restriction. He also reviewed the history and process of Part 161 and noted the extreme difficulty of receiving FAA approval on

- proposed airport noise restrictions since the enactment of the 1990 Airport Noise and Capacity Act.
- In July 2014, the Roundtable sent two letters regarding the Part 161 restriction: one addressed to the FAA to express support for LAWA's FAR Part 161 application and the other to the surrounding communities to urge them to submit their own letters in support of the proposed restriction.
- In November 2014, LAWA reported that it received a decision from the FAA indicating the disapproval of the Part 161 application as it had failed to meet three of the six statutory requirements. In March 2015, LAWA provided a detailed Roundtable briefing regarding the FAA Part 161 determination; LAWA acknowledged acceptance of the FAA's decision and does not plan to pursue the proposed restriction any further.

- LAWA to continue to monitor non-conforming east departures and provide statistical updates to the Roundtable. This update is currently scheduled for January and July of each year.
- LAWA will continue to send notification letters to air carriers who departed east during Westerly or Over-Ocean Ops to request them to fill out a form as a way to deter such operations.

Status: Active

Assigned Priority:



LAWA Workload: High

A3. Early Turn of Aircraft Departing to the West

Impact Description:

Aircraft departing to the west turn before crossing the shoreline overflying communities causing noise disturbances. This item includes early turn issues related to the three LAX RNAV departure procedures HOLTZ, OSHNN, and KARVR off of Runway 25R, aircraft given an offset to avoid wake turbulence or traffic, and due to wind drift.

Areas Primarily Affected:

Southern Sector (El Segundo), Northern Sector (Playa Del Rey)

- LAWA monitored above mentioned RNAV departure procedures and reported the issues associated with these procedures to FAA.
- In early 2007, LAWA worked with FAA to adjust the RNAV procedures to reduce aircraft from flying over the communities. Revised procedures were sent from FAA TRACON to FAA Oklahoma City Division for review and consideration.
- FAA published revised RNAV procedures in December 2007 to help reduce early turns from runway 25R departures.
- In March 2012, LAWA increased its effort with its Early Turn Notification Program by sending notices to aircraft operators on a more frequent and timely basis. In most cases, the notices are sent directly to the chief pilots via email.

- In July 2012, LAWA invited SkyWest, Southwest, American, and United to the Roundtable to learn more from the pilot's perspective of why early turns occur and to explore the possibility of reducing these operations. SkyWest's representative attended the meeting and provided a thorough explanation of why early turns occurred but did not offer any solution to minimize these operations.
- In July 2012, LAWA asked FAA to look into the possibility of not referencing the LAX VOR when issuing turning instructions to aircraft departing at LAX as this practice would most likely result in aircraft turning early. FAA representative indicated that he will look into that possibility.
 - In April 2013, FAA air traffic controllers started referencing the shoreline instead of the VOR when issuing routine turning instructions to aircraft as a way to reduce early turns. To maintain safety requirements, controllers may still direct aircraft to turn prior to the shoreline when necessary.
- Roundtable's letter to FAA on OAPM (Metroplex) recommendations dated September 2012 included suggestions to 1) explore options that could help pilots and controllers to reduce early turn operations and 2) explore the possibility of adding a waypoint in the RNAV procedures or use other emerging technologies to assist pilots in identifying the shoreline during IFR conditions that could in turn help reduce early turns.
 - In October 2016, FAA responded that the proposed waypoints were too close to the runway end for the aircraft's flight management system to detect. As an alternative, the FAA placed waypoints further out over the ocean to help reduce early turn operations.

- LAWA to continue its Early Turn program by monitoring early turns and notifying the FAA and the airlines when they occur.
- LAWA to continue providing statistical updates of early turn operations to the Roundtable. This update is currently scheduled for January and July of each year.

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Status: Active

Assigned Priority:

LAWA Workload: Medium

A4. Missed Approaches/Go-Arounds

Impact Description:

At times aircraft arriving at LAX are required to abort their landing and execute a missed approach procedure. Historically, aircraft executing a missed approach have impacted the communities to the north and south of the airport depending on the runway complex they were originally assigned.

Areas Primarily Affected:

Northern and Southern Sector

Mitigation Activities:

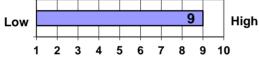
Letter sent to FAA in July 2002 requesting revisions to procedures.

- FAA presentation to Roundtable reported that arriving aircraft having to go around will maintain runway heading unless aircraft on adjacent runway starts take-off roll, and only then will be turned over the communities.
- The South Airfield Improvement Program (SAIP), which began in July 2006 and has since been completed, caused an increase in the incidence of overflights of El Segundo. LAWA staff has provided information to the FAA and the Roundtable to establish a record of over flight events before and after the runway project for both the northern and southern sectors.
- In July 2012, LAWA invited SkyWest and other airlines to the Roundtable to explore
 the possibility of reducing go-around operations. SkyWest's representative attended
 the meeting and indicated that there wasn't anything that SkyWest can do to
 minimize these operations.
- In September 2015, LAWA reported that the closure of RWY 24R/6L for approximately 3 months that commenced in late June 2015 for the Runway Safety Area construction had temporarily caused an increase in the incidences of aircraft executing go-arounds that overflew residential communities. These events decreased following the reopening of Runway 24R/6L in early October 2015.

 LAWA to continue to monitor go-around operations and provide statistical updates to the Roundtable. This update is currently scheduled for January and July of each year.

Status: Active

Assigned Priority:



LAWA Workload: Medium

A7. Extended Downwind Approach

Impact Description:

Aircraft arriving to LAX from the west and the north utilize an extended downwind approach at times. During certain weather conditions causing low visibility at LAX, and during periods of heavy air traffic, the downwind portion of this approach extends a substantial distance to the east. Because of changes in topography in some of these communities, aircraft flying this approach create significant noise impacts to these communities.

Areas Primarily Affected:

Eastern Sector (Monterey Park, San Gabriel Valley)

- In early 1998, LAWA staff developed a radar "gate" system for obtaining over flight information.
- A report was prepared by the Wadell Engineering Corp. for the City of Monterey
 Park: Overflights By Aircraft Arriving at Los Angeles International Airport, December
 1999. This report offered six alternatives:
 - 1. Reduce the number of flights

- 2. Redirect flights to other airports
- 3. Switch the altitude requirement where aircraft intercept the ILS between the north and south runway complexes so that the altitude over Monterey Park will be higher.
- 4. Increase the glide slope angle for the north runways
- 5. Formalize a high altitude cross-over procedure to the southern runways
- 6. Formalize a flight track from the Santa Monica VOR to narrow the spread
- Letter to the FAA, dated November 2002, asking for five mitigation actions (1, 3-6 from above mentioned report.) Response from the FAA on three of the suggested actions included items 2, 3 and 4 noted above.
- Report from the Flight Track Data Subcommittee, August 2002, included LAWA staff measurements.
- Worked with FAA Air Traffic to recommend they develop changes in standard approach procedures.
- Roundtable's letter to FAA on OAPM (Metroplex) recommendations dated September 2012 included suggestions to 1) increase the minimum altitude as much as possible for aircraft on the extended downwind and base legs of the approach to reduce noise and 2) explore options to reduce the requirement of using the extended downwind approach as a way to minimize Monterey Park overflights.
- In July 2015, based on review of the Metroplex proposed procedures, the Roundtable Facilitator indicated that the proposed North Downwind Required Navigation Performance (RNP) arrival procedures may partially reduce overflights for Monterey Park. Some aircraft will still fly over Monterey Park since the FAA controllers have the option of vectoring aircraft to fly further east on the north downwind leg for safety, weather and traffic considerations, and for aircraft not equipped to fly RNP procedures.
- In July 2016, a resident, who was also a Planning Commissioner, from City of Monterey Park, speaking on behalf of the City, provided several recommendations to improve the noise situation in Monterey Park for the Roundtable's consideration.
- In September 2016, the Roundtable Facilitator evaluated each of these recommendations, and provided his independent assessment and suggestions to the Roundtable. The item was continued at the November 2016 meeting for further discussion.
- At the November 2016 meeting, the Roundtable decided to defer action on the proposals presented in July 2016 until after the Metroplex implementation in order to determine whether the proposed North Downwind RNP procedure may result in fewer aircraft operating on the extended downwind approach procedure.
- At the November 2016 meeting, members from the Cities of Monterey Park, Montebello, and Rosemead requested receiving the statistical update for the Extended Downwind Approach over Monterey Park on a monthly basis. LAWA agreed to provide this information monthly.
- In May 2017, LAWA provided an initial comparison of the Extended Downwind Approach before and after the implementation of Metroplex. The comparison showed a concentration of flights on the downwind leg of the north arrival pattern indicating RNAV STAR procedures (IRNMN, HUULL, and RYDRR) are in use after Metroplex implementation. However, a dispersion of flights still exists on the base leg of the pattern, where the turn is designed to occur between the 110 and 710 freeways, suggesting that the RNP arrival procedure is not in use yet. The RNP procedure is dependent on the TSAS tool and aircraft equipage in order to be operational.
- In August 2017, the Roundtable submitted a letter requesting that FAA expedite
 deployment of the TSAS tool for the SoCal TRACON as a way to move the RNP
 procedure implementation forward. FAA responded in September 2017 that

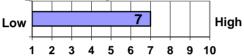
modifying the schedule of the TSAS tool deployment for the SoCal TRACON would adversely affect the entire schedule for all FAA facilities; therefore, it is unable to accelerate the TSAS deployment at the SoCal TRACON. FAA noted the TSAS tool is scheduled for deployment in the 2nd Quarter of Fiscal Year 2020 for the SoCal TRACON facility.

Ongoing Actions:

- LAWA to continue monitoring extended downwind approach operations and provide statistical updates to the Roundtable at the March and September meetings each year.
- LAWA to provide monthly statistical updates covering the Extended Downwind Approach operations to Monterey Park, Montebello, and Rosemead.

Status: Active

Assigned Priority:



LAWA Workload: Low

A9. Departures on Runway 25L

Impact Description:

Aircraft departing from RWY 25L create noise disturbances to the communities south of LAX, especially during the nighttime hours.

Areas Primarily Affected:

Southern Sector (El Segundo)

- In July 2010, LAWA looked into 25L departures at nighttime and discovered that, in most cases, 25R closure was the cause for aircraft to depart on 25L. LAWA also looked into the possibility of minimizing closure on 25R as a way to reduce overall 25L departures. LAWA reported that the practice of minimizing closure is already in place since it consolidates all maintenance work during a planned closure and closes 25R on a reduced timeframe.
- In November 2012, LAWA inquired FAA Tower personnel about the possibility of minimizing departures on Runway 25L. FAA representative explained that controllers will assign aircraft from the Central Terminal Area to Runway 25R for departures, but noted that GA and Cargo aircraft whose facilities are located south of the outboard runway must cross two active runways to depart on 25R, which is a safety concern due to the potential for runway incursions. Despite this challenge, FAA has managed to assign more GA and Cargo aircraft to 25R than 25L for departures.
- In May 2013, LAWA inquired Fed Ex at the Roundtable meeting about the
 possibility of having Fed Ex pilots request Runway 25R for each departure as a
 way to minimize aircraft departing on Runway 25L. In November 2013, Fed Ex
 indicated that all of its pilots are requesting the inboard runway (25R) for

- departures at LAX with the understanding that the FAA controller may not grant the request or that the inboard runway may be closed during that time.
- In May 2014, Roundtable Facilitator provided a briefing on the LAX Preferential Runway Use Report which examined the effectiveness of the Preferential Runway Use Policy at LAX. The report indicated that adherence to the Policy continued to be high with over 90% of the operations complying with the Policy and included recommendations to further improve adherence. The report was prepared and submitted to Caltrans as part of the Title 21 Noise Variance process.

- LAWA to continue to work with the FAA in an effort to minimize the use of 25L for departures.
- LAWA to continue to monitor runway utilization on the south complex and provide periodic statistical updates to the Roundtable. This update is currently scheduled for May and November of each year.

Status: Active
Assigned Priority:

Low

1 2 3 4 5 6 7 8 9 10

LAWA Workload: Medium

A10. Turboprop Community Overflights

Impact Description:

Turboprop aircraft departing to the south with destinations to the east overfly the PV Peninsula and Torrance heading to the Seal Beach VOR.

Areas Primarily Affected:

Southern Sector (PV Peninsula, Torrance)

- In 2002, FAA has routed most turboprops off the PV Peninsula, with only ONT, PSP and SNA operations overflying communities.
- Roundtable sent a letter to FAA, in May 2003, to request remaining aircraft to be routed offshore from Palos Verdes Peninsula.
- Roundtable sent a letter to FAA, in February 2004, requesting the floor altitude of the Class B airspace to be increased near PV Peninsula. FAA did not make the requested change.
- FAA established and implemented the HOLTZ, KARVR and OSHNN RNAV
 departure procedures, in late 2004, to move jet departures that would be flying the
 LAXX DP further offshore with the intent of possibly moving more turboprops over
 the ocean.
- FAA developed a new RNAV procedure for turboprop aircraft called JEDDD in April 2008 to reroute turboprops further offshore from the PV Peninsula. Testing is required before the procedure can be utilized. FAA anticipated that the procedure will be active by April 2010. The JEDDD procedure will not reroute turboprops with destinations to ONT, PSP, and SNA. FAA will explore alternative options for these aircraft.

- In December 2010, Roundtable sent a letter to FAA to inquire the status on the JEDDD procedure. In January 2011, FAA responded to indicate that it decided not to implement the procedure because, through testing, it was not able to maintain aircraft separation between jets and turboprops without vectoring aircraft off the JEDDD route. However, FAA noted that it will explore other options such as redesigning the JEDDD procedure or creating an entirely new RNAV procedure for turboprop aircraft.
- Roundtable's letter to FAA regarding OAPM (Metroplex) recommendations dated September 2012 included suggestions to 1) explore options of redesigning the JEDDD procedure that will meet all necessary requirements to allow full implementation of the procedure, 2) reroute the remaining turboprop aircraft that are currently overflying the Peninsula to offshores routes, and 3) if option 2 proves infeasible, then increase the minimum altitude of turboprop aircraft that overfly the Peninsula.
- In October 2016, FAA confirmed the cancellation of the JEDDD procedure due to aircraft separation issues as noted previously in the FAA's January 2011 response letter. The FAA indicated that developing a new departure procedure for turboprop aircraft would require Class B airspace modification, which is outside the scope of the Metroplex project. Furthermore, the FAA indicated that the turboprop traffic at LAX has decreased significantly since SkyWest retired its turboprop aircraft in mid-2015.
- In July 2017, LAWA provided a preliminary analysis indicating an increase in lower altitude turboprop operations over PV Peninsula. This may have occurred due to Mokulele Airline's Cessna Caravan performance characteristics and an FAA altitude restriction in place for this aircraft type. LAWA is working with FAA to obtain a better understanding of this issue and plans to report back to the Roundtable at a later date with more information.

 LAWA to continue monitoring turboprop operations and provide statistical updates to the Roundtable. This update is currently scheduled for May and November of each year.

Status: Active
Assigned Priority:

Low

1 2 3 4 5 6 7 8 9 10

LAWA Workload: Medium

A12. Noise Exposure From A320 Family of Aircraft

Impact Description:

Researchers in Europe have identified a high-pitched noise from the older A320 family of aircraft as the aircraft descends for landing, caused by air flowing across open cavities under the wing. The noise can be heard several miles from the runway before the deployment of landing gear. Researchers have developed a simple solution called the Vortex Generator that solves this particular problem. The Vortex Generator is a small metal device placed in front of the open cavities that changes the air flow and reduces the noise by 2 dB to 6 dB. Airbus is already placing vortex generators on newly

manufactured aircraft and Lufthansa and Air France are retrofitting their existing aircraft that operate in Europe.

August 2014 statistics indicate that approximately 17% of the total arrivals at LAX are comprised of A320 family aircraft. The Roundtable is interested in recommending that airlines install the device on their existing A320 aircraft to help reduce noise for airport communities in the U.S.

Areas Primarily Affected:

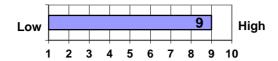
Global issue affecting all sectors

Mitigation Activities:

- In January 2015, LAWA reached out to O'Hare Noise Compatibility Commission (ONCC) to learn more about its outreach efforts. ONCC submitted letters to two airlines to encourage them to install the vortex generators on their aircraft. One of the airlines responded and said that they preferred to invest their limited resources in new aircraft as new planes have greater effects on noise reduction. LAWA also reported that it has reached out to Airbus to learn more about the vortex generator installation.
- In March 2015, LAWA reported that Lufthansa spent about 5-6 million Euros to retrofit all of its 157 A320 aircraft with vortex generators. Germany's Frankfurt Airport provides Lufthansa with a 40% discount on their landing fees as incentive to retrofit A320s with the device. Currently, no such incentive exists in the U.S., and in fact is prohibited by federal law.
- In September 2015, the Roundtable Facilitator began evaluating several strategies to move this work program item forward, and will provide more information at subsequent meetings.
- In March 2016, the Roundtable Facilitator reviewed several strategies to encourage U.S. airlines to install vortex generators on their fleet of A320 aircraft. These strategies included obtaining Congressional funding support, offering reduced landing fees to airlines, partnering with an airline to serve in a champion role, and partnering with another airport to urge the airlines to do so. Research suggested that the options involving financial incentives are not feasible as they could be time consuming, costly to implement, and would likely be challenged by the FAA and the airlines as being discriminatory. Therefore, the most viable option was to continue pursuing this effort without incentives.
- In May 2016, LAWA reported that it had submitted a letter to United Airlines to request the installation of the vortex generators on their A320s. Two other airports, SFO and ORD, also submitted letters to United.
- In December 2016, United responded to indicate that it has agreed to install the vortex generators on its A320s with the first aircraft retrofit expected to be completed in early 2017, and subsequent aircraft to be completed at a rate of two per month.
- In November 2017, the Roundtable Facilitator provided an update on United's A320 Vortex Generator Retrofit Program, which will retrofit over 150 aircraft and take several years to complete. The retrofit is performed during scheduled heavy maintenance at a rate of about 2 to 3 aircraft per month.

Status: Active

Assigned Priority:



LAWA Workload: High

A13. LAX Jet Aircraft Flying Over Long Beach

Impact Description:

In 2016, residents from Long Beach reported that they noticed more aircraft flying over their neighborhoods than previously.

Areas Primarily Affected:

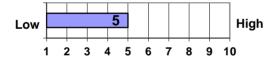
Southern Sector (Long Beach)

Mitigation Activities:

- In December 2016, LAWA conducted a preliminary analysis of aircraft departing from LAX that fly over Long Beach. The analysis compared flight operations for one month (October) within each year, from 2011 through 2016. The results indicated a noticeable increase in jet departures in October 2016 as compared to October 2015 with jets flying at high altitudes (average of 16,000 ft.) over this area.
- LAWA to conduct an additional analysis of LAX's jet arrivals and departures that fly over Long Beach to obtain a better understanding of this issue.

Status: Active

Assigned Priority:



LAWA Workload: Medium

A14. Aircraft Not Adhering to Minimum Altitude Requirements at DAHJR and GADDO waypoints under the North Downwind Arrival procedures (HULLL, IRNMN, and RYDRR)

Description:

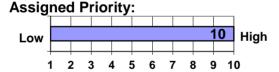
Under the SoCal Metroplex Project, three RNAV arrival procedures (HUULL, IRNMN, and RYDRR) have a minimum altitude restriction at DAHJR waypoint and a proposed minimum altitude restriction at GADDO waypoint. Since the implementation of these procedures in April 2017, most aircraft are still flying below the minimum altitudes at both waypoints. Aircraft flying below the minimum altitudes cause noise disturbances for residential communities under the flight path.

Areas Primarily Affected:

West Adams, Jefferson Park, Adams-Normandie, University Park, Council Districts 8 & 10

- In September 2017, LAWA presented an altitude data comparison for the LAX North Downwind Arrivals at DAHJR waypoint indicating there has been a concentration of flights traveling along the north downwind route towards the DAHJR waypoint, and aircraft were flying at similar altitudes before and after Metroplex implementation.
- In September 2017, the Roundtable held a special meeting to review flight procedures and submit several comment letters to the FAA pertaining to proposed revisions of HUULL, IRNMN, and RYDRR that include a new minimum altitude restriction of 6,000 feet at waypoint GADDO.
- In October 2017, the Roundtable submitted a letter to FAA requesting that air traffic controllers require aircraft to adhere to the 6,000 ft. minimum altitude at DAHJR waypoint, especially during nighttime and early morning hours.
- In November 2017, FAA responded to the Roundtable letters dated 9/23/17 and 10/1/17 indicating that it cannot discuss these matters at the present time due to the FAA's current participation in a court-ordered confidential mediation program. After the mediation process is complete, the FAA will respond.
- In November 2017, the Roundtable submitted a letter responding to the FAA's declination to brief the Roundtable on information regarding flight procedures that were open for public comment.
- In November 2017, the Roundtable requested that LAWA provide monthly altitude data at DAHJR and GADDO waypoints. LAWA provided the data and will continue providing altitude data at these two waypoints on a monthly basis.
- In December 2017, the Roundtable submitted a letter to the FAA inviting representatives from So Cal TRACON, LAX Tower, and Procedure Design Team to attend the January 10, 2018 and future Roundtable meetings to discuss air traffic control practices, procedure design processes, and aircraft noise issues pertaining to the HUULL, IRNMN, and RYDRR procedures.

Status: Active



LAWA Workload: High

A15. Aircraft Noise Affecting 360 at South Bay Community

Impact Description:

Residents from 360 at South Bay Community reported that they experienced loud noise from LAX aircraft operations beginning in November 2015 and continuing to present.

Areas Primarily Affected:

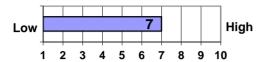
360 at South Bay Community in Hawthorne

Mitigation Activities:

 In November 2017, the Hawthorne Roundtable representative invited residents from the 360 at South Bay Community to the Roundtable meeting to express their concerns about increased noise and requested LAWA to conduct a study to determine the causes of increased aircraft noise and make noise reduction recommendations, if possible. • LAWA to conduct the requested study and report the findings to the Roundtable.

Status: Pending

Assigned Priority:



LAWA Workload: High

B. NOISE MONITORING AND REPORTING

B1. Low Frequency Noise

Impact Description:

Low Frequency Noise (LFN) from LAX affects numerous communities, including ones located miles away from LAX. LFN travels far distances and is invisible to structures, so is very difficult to mitigate via sound insulation.

Areas Primarily Affected:

Global issue affecting all sectors

Mitigation Activities:

- The full Roundtable and the Noise Subcommittee received two technical presentations from Mr. Sanford Fidell of Fidell & Associates on LFN in summer 2004.
- Roundtable recommended that the FAA conduct further research on the topic.
- LAWA initiated LFN data collection on ANOMS as of February 18, 2010.
- In September 2010, HMMH provided an updated presentation on LFN including a summary report on PARTNER's LFN Study.
- In September 2010, LAWA presented the LFN data received from the noise monitoring system. Initial review of those data indicated that noise monitors that were closer to the aircraft register more noise events than those that were further out.

Status: Active

Assigned Priority:

Low 5
High

LAWA Workload: Low

B2. Evaluate the 60 dB CNEL Noise Contour for Eligibility for Sound Insulation

Impact Description:

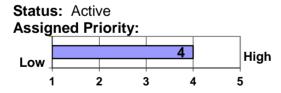
Persons living outside LAX's 65 dB CNEL noise eligibility contour (4Q1992), but within the 60 dB CNEL contour are not eligible for noise insulation, but are impacted by the noise from LAX operations. LAWA currently cannot produce an accurate 60 dB CNEL noise contour, but will be able to do so once the new ANOMS noise monitoring system is operable.

Areas Primarily Affected:

Global Issue affecting all sectors

Mitigation Activities:

- LAWA to produce the 60 dB CNEL noise contour once one year's monitoring is completed using the new ANOMS system after it has been approved by Caltrans.
- Roundtable to evaluate the possibility of using the 60 dB CNEL contour as a soundproofing eligibility contour when the contour is produced, and request LAWA to adopt for soundproofing eligibility.
- From 2008 to 2009, LAWA staff participated in the Airport Cooperative Research Program in which it appointed HMMH to conduct study and survey of the various programs offered by airports in the U.S. to address noise issues outside of the 65 DNL/CNEL noise contour. Study is now complete and the report entitled "Compilation of Noise Programs in Areas Outside DNL 65" is available online at http://onlinepubs.trb.org/onlinepubs/acrp/acrp_syn_016.pdf.
- In March 2010, HMMH provided the Roundtable a presentation summarizing the results of the ACRP project.
- In 2014, ACRP published <u>Web-Only Document 17: Research Methods for</u> Understanding Aircraft Noise Annoyances and Sleep Disturbance.
- Largely based on the above research, FAA is performing an annoyance survey that
 will be sent out to communities in the vicinity of 20 undisclosed U.S. airports. The
 study will likely conclude in 2016, with results analyzed and published in 2017. The
 FAA may then consider whether a change in the current noise policy is required,
 including altering the current standard of 65 DNL (similar to CNEL used in
 California).



LAWA Workload: Medium

B3. Ground Run-ups During Restricted Hours (2300 to 0600 hrs.)

Impact Description:

Ground run-ups during the hours of the restriction create noise disturbances during these noise sensitive hours to the surrounding communities. There is currently no effective way to actively monitor all run-up activities at LAX.

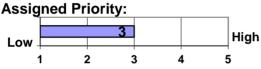
Areas Primarily Affected:

Northern Sector, Southern Sector

Mitigation Activities:

- Ground run-up monitoring system was built as part of the LAX Noise Monitoring System replacement project. The system allows LAWA to monitor certain run-up activities at LAX and to evaluate the noise impact of such events.
- LAWA provided a presentation in May 2008 on the installation of a ground run-up monitoring unit at the Fed Ex maintenance facility.
- LAWA provided a status update in March 2009 indicating that the installation of the GRU monitoring unit is completed.
- Certain GRU software functionalities have been integrated into ANOMS.
- In September 2015, LAWA provided an overview of the Ground Run-up Enclosure (GRE) siting and feasibility study. The purpose of this study was to determine a feasible location at LAX to build the GRE, and to assess its noise reduction performance. The study identified two potential sites to be the most suitable for the GRE installation and indicated the noise reduction performance to be favorable. LAWA is moving forward with the next step which is to conduct the environmental review for the two potential sites.

Status: Active



LAWA Workload: Medium

B4. Review Use of Single Event Noise Metrics

Impact Description:

Noise Subcommittee has reported to Roundtable regarding use of single event noise metrics.

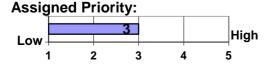
Areas Primarily Affected:

Global Issue affecting all sectors

Mitigation Activities:

- At the March 13, 2002 meeting, Mr. Bill Albee of Wyle Labs made a presentation on alternative noise metrics including single event metrics to the Roundtable.
- At its meeting of February 8, 2006, the Noise Subcommittee noted the need to acquire single noise event data from the new ANOMS.
- LAWA will provide information to the Roundtable on the capability of the new ANOMS to provide single event metrics.

Status: Active



LAWA Workload: Medium

B5. Status Report on Soundproofing Program

Description:

The Soundproofing Program reduces interior noise levels for residents who live within the 65 CNEL boundary by providing acoustic modifications to their homes. LAWA manages the soundproofing program for residents in the City of Los Angeles and provides funding for agencies in other municipal jurisdictions (County of Los Angeles, City of El Segundo, and City of Inglewood) to perform soundproofing for their respective residents.

Areas Primarily Affected:

Global issue affecting all sectors

Mitigation Activities:

- LAWA started providing annual status report on the soundproofing program in 2012.
- In September 2012, Roundtable sent a letter to the FAA expressing concerns with the new Program Guidance Letter (PGL) for Airport Sound Insulation Programs. The PGL includes stricter requirements for residents to qualify for sound insulation such as requiring the interior noise level of residential properties that are within the noise impact area to be at or above 45 dB in order to qualify for the program. No response was received from the FAA. The FAA is moving forward with the stricter requirements for the sound insulation programs as set forth in the PGL.
- In January 2014, LAWA reported that it has started the process to update the LAX Part 150 Noise Exposure Maps (NEMs) to ensure sound insulation programs continue to receive funding from FAA.
- Throughout 2014 and 2015, the Roundtable Facilitator provided the Roundtable with periodic updates on the LAX Part 150 NEM Update project.
- LAWA hosted public workshops for the LAX Part 150 NEM Update to afford the public the opportunity to learn more about the project and to submit comments. Public workshops were held in May 2014 and May 2015.
- The final LAX NEM document was submitted to the FAA on September 23, 2015 for official review.
- In February 2016, the FAA notified LAWA that it has accepted the LAX NEMs. The 2020 NEM will be used to determine eligibility for participation in the noise mitigation programs at LAX.

Ongoing Actions:

• LAWA to continue providing annual status report on the soundproofing program. Status report for this item is currently scheduled for July of each year.

Status: Active

Assigned Priority:

Low

1 2 3 4 5

LAWA Workload: Low

C. NOISE AND AVIATION INFORMATION

C1. Establish Working Relationships with Other Roundtables

Impact Description:

Roundtable membership desires to establish formal ongoing working relationships with other airport noise Roundtables or other community forums.

Areas Primarily Affected:

Global Issue affecting all sectors

Mitigation Activities:

- Roundtable sent copies of letters to SFO and ORD (O'Hare) noise commissions/roundtable.
- In July 2009, David Carbone, Program Manager of the SFO Roundtable, attended the LAX Roundtable to provide a presentation on SFO Roundtable and to establish a working relationship between the two Roundtables.
- In November 2011, Roundtable facilitator pointed out the benefits and drawbacks of establishing working relationships with other roundtables and provided recommendations on ways to allow for increased connectivity with other organizations. He also sought input from Roundtable members as to what they wish to get out of from having working relationships with other roundtables. As members did not provide any immediate ideas at the meeting, LAWA sent a follow-up email to ask them for their suggestions. No responses were received.
- In January 2014, a representative from Portland International Airport (PDX) attended the Roundtable meeting to provide a presentation about PDX's Citizen Noise Advisory Committee and noise management programs.
- In November 2014, representatives from the SFO Roundtable provided an update on the SFO Roundtable activities as well as the FAA Metroplex Project for the San Francisco Bay Area.
- In September 2017, an SFO Roundtable representative provided a briefing on the organization and operation of the SFO Roundtable and its programs to reduce aircraft noise including its efforts related to the NorCal Metroplex Project.

Ongoing Actions:

 Roundtable Facilitator will continue to arrange for guest speakers from other airport noise forums.

Status: Active

Assigned Priority: N/A

LAWA Workload: Low

C2. Briefings on Technical Advances Within the Industry

Impact Description:

The Roundtable needs to be informed of the evolving technology in aircraft engine and airframe, airspace utilization, and airline marketing as it relates to noise impacts in surrounding communities.

Areas Primarily Affected:

Global Issue affecting all sectors

- Presentation by the Roundtable consultant of the Wyle Labs "before-and-after study" of single event noise impacts at Eagan, MN as a result of a new runway at MSP – February 8, 2006.
- Boeing conducted a presentation on aircraft quiet engine technology on September 13, 2006.
- Roundtable Facilitator provided information on retirement of B727 aircraft from UPS and Fed Ex in January 2008. Roundtable sent letter to Fed Ex, in February 2008, to encourage expedited replacement of B727 with quieter aircraft. Fed Ex responded that the aircraft replacement process will take several years to complete. Fed Ex's presentation at the November 2013 Roundtable meeting indicated that Fed Ex has retired all of their fleet of B727s. No letter was sent to UPS since it does not operate B727 at LAX.
- LAWA staff provided information about replacement of B747-200 with quieter A330 aircraft from Northwest Airlines in March 2008.
- Pratt & Whitney provided a presentation on its "Geared Turbofan Engine Technology" to the Roundtable in May 2009.
- Roundtable Facilitator provided a presentation on Next Generation Air Traffic Control System to the Roundtable in September 2009.
- Southwest provided a presentation on RNP procedures to the Roundtable in September 2009.
- NASA representative provided a presentation on LAX Oceanic Tailored Arrivals to the Roundtable in January 2010.
- In May 2010, Roundtable Facilitator began providing updates on aviation noise information at each meeting.
- In July 2010, LAWA subscribed to the Airport Noise Report newsletter and began
 weekly distribution of the newsletter to Roundtable members. This newsletter
 provides updates on litigation, regulations, and technological developments as they
 relate to aviation noise.
- In November 2012, the Boeing Company provided a presentation to the Roundtable on various noise reduction technologies that are available on the B737-800, B747-800, and B787 aircraft.
- In July 2013, FAA provided an update on the LAX Oceanic Tailored Arrivals project to the Roundtable.
- Throughout 2017, the Aviation Noise News updates prepared by the Roundtable Facilitator documented several technical advances in aircraft noise reduction including:
 - The roll out of Boeing's 787-10 with Trent 1000 Ten and Genx-1B engines which incorporate state-of-the-art noise reducing technologies to keep the 85 dBA Lmax contour on the airfield
 - Boeing and jetBlue's investment in the development of a hybrid-electric aircraft that would cut community noise by 75 percent
 - NASA's transfer of its Terminal Spacing and Sequencing (TSAS) Tool to the FAA for testing, certification, and implementation
 - Southwest Airlines taking delivery of its first Boeing 737-8 MAX aircraft that is quieter and more fuel efficient than the 737-300 it's replacing

• Airport Noise Report and Roundtable Facilitator will continue to provide periodic updates on technical advances within the industry.

Status: Active

Assigned Priority: N/A

LAWA Workload: Low

C3. Briefings on Relevant Legislative and Regulatory Actions by International, Federal and State Agencies

Impact Description:

The Roundtable needs to be informed of actions by agencies that relate to noise impacts in surrounding communities.

Areas Primarily Affected:

Global Issue affecting all sectors

- In September 2001, Roundtable sent a letter to comment on the Draft Update of the National Noise Policy. FAA dropped the update effort.
- In September 2001, Roundtable sent letters to Congressional Representatives to oppose H.R. 2107—a bill that would allow federal intervention in local airport decision process. Bill did not pass.
- In February 2005, Roundtable made comments via letter to the FAA on proposed actions involving "levels of significance" criteria for NEPA compliance.
- Comments on the ICAO Committee on Aviation Environmental Protection actions involving aircraft certification criteria.
- In February 2006, Roundtable sent a letter to FAA to comment on FAA Order 5050.4B, which failed to address new noise levels of significance.
- In 2007, Roundtable sent letters to FAA and Congressional Representatives to provide support of the FAA Reauthorization Bill.
- LAWA provided a status update on the FAA Reauthorization Act of 2009 in June 2009.
- In July 2010, Roundtable sent letters to Congressional and Senatorial representatives to urge passage of the FAA Reauthorization Bill and to support two provisions in the bill--funding allocation for airspace redesign projects and elimination of Stage 2 aircraft. Bill was not passed in 2010.
- In March 2011, Roundtable sent a letter to the House Subcommittee on Aviation to oppose the Categorical Exclusion provision proposed in S.223 FAA Air Transportation Modernization and Safety Act. Final FAA Reauthorization Bill was passed in February 2012 with Categorical Exclusion provision included.
- In July 2011, Roundtable sent letters to Congresswoman Janice Hahn and the Senate conferees to urge them to reinstate the provision in the FAA Reauthorization Bill that provides funding allocation for airspace redesign projects and to reaffirm the Roundtable's support of the two provisions in the Bill—funding allocation for airspace redesign projects and elimination of Stage 2 aircraft. Bill passed in February 2012. It includes Stage 2 aircraft prohibition and funding for Optimization of Airspace and Procedures in the Metroplex project.

- In January 2012, Roundtable sent letters to the House and Senate Committees on Aviation Matters to express support for the L.A. Residential Helicopter Noise Relief Act of 2011. Bill did not pass.
- In May 2013, Roundtable wrote letters to the House and Senate committees on aviation matters to offer support for the Los Angeles Residential Helicopter Noise Relief Act of 2013. Bill did not pass. In January 2014, Congress passed a separate appropriations bill that included a helicopter provision that directs the FAA to move forward with the voluntary measures as set forth in the FAA's Report on the Los Angeles Helicopter Noise Initiative. The provision also directs the FAA to develop helicopter regulations, if after one year from the bill's enactment, the FAA cannot demonstrate the voluntary measures to be effective.
- In October 2014, Roundtable submitted a comment letter to FAA opposing use of the Net Noise Reduction (NNR) Method for evaluating noise exposure of Performance Based Navigation (PBN) procedures. The NNR Method would introduce different noise analysis methodologies in the environmental review process to determine qualification for a Categorical Exclusion when implementing PBN procedures, possibly resulting in shifts in noise exposure which are incompatible with the Roundtable By Laws.
- In March 2016, the Roundtable submitted a comment letter to FAA to express support for a proposed Stage 5 aircraft noise standard for new aircraft operating in the U.S. and to encourage FAA to include a provision that will phase out existing Stage 3 aircraft as part this proposal.
- In March 2017, the Roundtable submitted a letter to the House Subcommittee on Aviation to express support for H.R 598 Airplane Impacts Mitigation Act - a bill that directs the FAA to conduct a study examining the health effects of residents in certain metropolitan areas where the implementation of FAA's NextGen program has occurred. Bill H.R.598 was referred to the Subcommittee on Aviation on January 20, 2017 and has not been advanced to the floor for a vote.

 With access to the Airport Noise Report and Roundtable Facilitator, roundtable members continue to obtain updates on relevant legislative and regulatory actions as they become available.

Status: Active

Assigned Priority: N/A

LAWA Workload: Low

C4. Aircraft Noise Stringency Standards via the ICAO and CAEP Processes

Impact Description:

Roundtable is interested in increasing the noise stringency standards for aircraft operating at LAX to reduce the noise produced by aircraft arrivals and departures, and reducing the noise impacts to the communities.

Areas Primarily Affected:

Global Issue affecting all sectors

Mitigation Activities:

- In August 2001, Roundtable sent a letter to FAA requesting that turboprop aircraft be included in ICAO Stage 4 aircraft standards. This request was not honored.
- In December 2001, Roundtable sent a letter to Carl E. Burleson of the FAA to request a presentation on Stage 4 standards and CAEP process. Carl Burleson provided the presentation to the Roundtable in March 2002.
- In November 2007, LAWA staff participated in the CAEP meetings as an observer for ACI-NA.
- LAWA staff continues to work closely with ACI-NA through its Environmental Affairs Committee and the Noise Working Group, as well as directly with the ACI's ICAO Liaison to influence the CAEP process and attempt to get additional noise stringency standards added to the CAEP Work Program.
- In March 2013, Roundtable Facilitator provided an update on the ICAO/CAEP process indicating that CAEP/9 recommended the ICAO Council to adopt the new noise standard of Stage 4/Chapter 4 minus 7 EPNdB that is expected to go into effect in 2017 for newly manufactured large aircraft and in 2020 for newly manufactured small aircraft.
- In November 2017, the Aviation Noise News Update prepared by the Roundtable Facilitator documented the FAA's promulgation of Stage 5 noise standards for new airplanes designs requiring a cumulative 7-dB reduction over the Stage 4 noise standards with at least a 1-dB over Stage 3 standards at each certification measurement site. Airplanes with a maximum certificated takeoff weight of 121,254 pounds or more must comply with the Stage 5 standards on or after December 31, 2017. Airplanes with a maximum certificated takeoff weight of less than 121,254 pounds must comply with the Stage 5 standards on or after December 31, 2020.

Ongoing Actions:

- Roundtable to continue monitoring future noise stringency actions proposed by ICAO and CAEP and will comment accordingly.
- Airport Noise Report and Roundtable Facilitator continue to provide updates on this topic as they become available.

Status: Active

Assigned Priority: N/A

LAWA Workload: Low