Final Environmental Impact Report (Final EIR)

[State Clearinghouse No. 2012091037]

for

Los Angeles International Airport (LAX)
West Aircraft Maintenance Area Project

Volume 5

Responses to Comments
and
Corrections and Additions to the Draft EIR

Final Environmental Impact Report

This document (Volume 5) comprises the second and final part of the Environmental Impact Report (EIR) for the West Aircraft Maintenance Area Project and supplements the Draft EIR for the West Aircraft Maintenance Area Project (consisting of Volumes 1 through 4), previously circulated for public review and comment. The West Aircraft Maintenance Area Project EIR is available for review at Los Angeles World Airports (LAWA) Administrative Offices, One World Way, Suite 218, Los Angeles, CA 90045.

City of Los Angeles
Los Angeles World Airports

February 2014

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City of Los Angeles
Los Angeles World Airports

February 2014

Table of Contents

List of Figures

Appendices

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PREFACE

This document, in conjunction with the previously prepared documents described below, constitutes the Final Environmental Impact Report (Final EIR) for the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project (proposed Project). The proposed Project would grade approximately 84 acres in the southwestern portion of the airfield (hereafter referred to as the Project site) and develop approximately 68 acres of the 84 acres with taxiways and aircraft parking apron areas, maintenance hangars, employee parking, service roads, and ancillary facilities (i.e., related storage, equipment and facilities).[1] The proposed Project would be able to accommodate up to 10 Airplane Design Group (ADG) VI aircraft, such as the Airbus A380, or a mix of smaller aircraft on the site. The proposed Project would not increase passenger or gate capacity and would not increase flights and/or aircraft operations at LAX, but would consolidate, relocate, and modernize some existing maintenance facilities and activities.

In accordance with the California Environmental Quality Act (CEQA), Los Angeles World Airports (LAWA), as Lead Agency, completed an EIR to address and disclose the potential environmental impacts associated with the proposed Project. LAWA circulated a Draft EIR regarding the proposed Project, received public and agency comments on the Draft EIR, and prepared written responses to those comments - all of which provides the basis for this Final EIR.

Pursuant to CEQA Guidelines §15132, a Final EIR consists of:

(a) The Draft EIR or a revision of the draft.

(b) Comments and recommendations received on the Draft EIR either verbatim or in summary.

(c) A list of persons, organizations, and public agencies commenting on the Draft EIR.

(d) The responses of the Lead Agency to significant environmental points raised in the review and consultation process.

(e) Any other information added by the Lead Agency.

Accordingly, the Final EIR for the proposed Project consists of two components, as follows:

Component 1: Draft EIR and Technical Appendices

Volume 1 - Draft EIR: Volume 1 of the Final EIR includes the Draft EIR-Main Document, Chapters 1 through 7, and Appendix A (Initial Study, Notice of Preparation [NOP], NOP Comments, Scoping Meeting Materials, and Scoping Meeting Comments) which compiles input received in association with the NOP that was distributed for public review and comment from October 17, 2013 through December 2, 2013.

Volume 2 – Appendix B: Volume 2 of the Final EIR includes technical Appendix B (Air Quality, Greenhouse Gas, and Human Health Risk Assessment) with supporting data and analyses developed in conjunction with the Draft EIR.

Volume 3 – Appendix C: Volume 3 of the Final EIR consists of technical Appendix C (Noise Analysis and Worksheets) with supporting data and analyses developed in conjunction with the Draft EIR.

Volume 4 – Appendix D: Volume 4 of the Final EIR consists of technical Appendix D (Construction Surface Transportation: Study Area Intersection and Construction Vehicle Haul Route Analysis) which was developed in conjunction with the Draft EIR.

[1] Within the Project site, 68 acres would be paved while approximately 16 acres would be unpaved islands between taxiways and other unpaved areas.

Component 2: Responses to Comments and Corrections and Additions to the Draft EIR

Volume 5 - Responses to Comments and Corrections and Additions to the Draft EIR: The second part of the Final EIR consists of a compilation of the comments received on the Draft EIR, and written responses prepared by LAWA to those comments. This document includes indices (i.e., lists) of agencies, organizations, and individuals that commented on the Draft EIR, and provides a copy of the comment letters in their original form (i.e., photocopies of comment letters). This document also describes other information, such as a delineation of corrections and additions to information presented in the Draft EIR, which have been added by LAWA as part of the Final EIR.

All of the documents described above, comprising the Final EIR for the proposed Project, are available for public review at the following locations:

- LAWA Administrative Offices, One World Way, Suite 218, Los Angeles, CA 90045
- Westchester-Loyola Village Branch Library, 7114 West Manchester Avenue, Los Angeles, CA 90045
- El Segundo Library, 111 West Mariposa Avenue, El Segundo, CA 90245
- Inglewood Library, 101 West Manchester Boulevard, Inglewood, CA 90301
- Culver City Library, 4975 Overland Avenue, Culver City, CA 90230

The Final EIR is also available at www.ourlax.org.

1. INTRODUCTION AND INDICES

1.1 Introduction

In compliance with the California Environmental Quality Act (CEQA), Los Angeles World Airports (LAWA) has completed this Final Environmental Impact Report (Final EIR) for the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project (proposed Project). As described in the Preface of this document, the Final EIR for the proposed Project consists of two components, with the first component consisting of Volumes 1 through 4 - Draft EIR and associated Technical Appendices for the proposed Project and the second component being Volume 5 - Responses to Comments and Corrections and Additions to the Draft EIR. This document, Volume 5, constitutes the second component of the Final EIR.

Draft EIR

A detailed description of the proposed Project is provided in Volume 1 of the EIR (see Chapter 2 in the Draft EIR-Main Document). On October 17, 2013, LAWA published a Draft EIR for the proposed Project. In accordance with CEQA, the Draft EIR was circulated for public review for 45 days, with the review period closing on December 2, 2013. A public workshop was held on November 5, 2013, during the comment period.

As explained in more detail in Volume 1 of the EIR, the proposed Project would grade approximately 84 acres in the southwestern portion of the airfield (hereafter referred to as the Project site) and develop approximately 68 acres of the 84 acres with taxiways and aircraft parking apron areas, maintenance hangars, employee parking, service roads, and ancillary facilities (i.e., related storage, equipment and facilities).[1] The proposed Project would be able to accommodate up to 10 Airplane Design Group (ADG) VI aircraft (Airbus A380s and Boeing 747-8s), or a mix of smaller aircraft on the site. As the intent of the proposed Project is to consolidate, relocate, and modernize certain existing aircraft maintenance facilities at LAX consistent with the LAX Master Plan, the Project would not increase passenger or gate capacity and would not increase flights and/or aircraft operations at LAX. The consolidation, relocation, and modernization of these facilities would allow for more efficient and effective maintenance of existing aircraft at the airport, including ADG VI aircraft. The proposed Project would also include the provision of aircraft parking positions adjacent to the new aircraft maintenance facilities and apron space for remain overnight/remain all day (RON/RAD) aircraft parking, which provides extended layover space for aircraft that cannot remain parked at terminal area contact gates. Routine aircraft maintenance and RON/RAD aircraft parking are regular functions at a major airport such as LAX. Therefore, as the proposed Project would combine aircraft maintenance hangars and aircraft parking areas within close proximity on the same site, it would support more efficient and effective use of airport facilities. Furthermore, the proposed Project would also serve to modernize and upgrade aircraft maintenance facilities at LAX, including new facilities for the maintenance of newer generation aircraft such as ADG VI aircraft.

Based on public input received by LAWA subsequent to publication of the Notice of Preparation/Initial Study (NOP/IS) in September 2012, and ongoing coordination between LAWA and the Federal Aviation Administration (FAA) regarding design of the proposed Project, certain refinements were made to the proposed Project from the time of the NOP/IS and the Draft EIR. The proposed Project was refined as follows: the developed area of the site was reduced by 20 acres; the aircraft maintenance hangar area was reduced from approximately 400,000 square feet to approximately 290,000 square feet of hangar bay space (floor area); and access to the site was provided via westerly extensions of Taxiway B and the extension of Taxiway C (as Taxilane C) rather than from Taxiway AA and Taxiway B. The reduction in developed area and the change in access were made to improve visibility of aircraft from the air traffic control tower, and to remove paved apron areas from the Runway Protection Zone for Runway 7L.

[1] Within the Project site, 68 acres would be paved while approximately 16 acres would be unpaved islands between taxiways and other unpaved areas.

In addition, the proposed Project, as refined and analyzed in the Draft EIR, no longer included a ground run-up enclosure (GRE) at the Project site. The results of a preliminary GRE noise analysis prepared for the Project originally contemplated in the NOP/IS found that development of the GRE at the Project site would provide only a minimal noise reduction benefit to sensitive receptors nearby. Specifically, the analysis of noise levels associated with aircraft engine run-up activities at the airport found that the GRE at the proposed Project site would provide very little reduction in run-up noise levels at sensitive receptor locations in nearby communities, based on the overall run-up activities at the airport, and there would be no significant noise impacts from the run-up activities anticipated to occur at the proposed Project site with or without the GRE. Therefore, LAWA eliminated the placement of the GRE at the Project site and will conduct a separate and independent airport-wide GRE siting study to determine locations better suited for a GRE in order to provide the most benefit and noticeable noise reduction to adjacent communities.

As stated above, the refinements to the proposed Project are in response to public input, coordination with FAA, and preliminary evaluation of the originally proposed Project. The refinements did not materially change the basic function and purpose of the Project, nor do they change the scope of the EIR analysis that was identified in the NOP/IS.

Final EIR

In accordance with CEQA Guidelines §15088, LAWA prepared responses to all comments received on the Draft EIR. As required by the CEQA Guidelines, the focus of the responses to comments is on "the disposition of significant environmental issues raised." Detailed responses are not provided to comments on the merits of the proposed Project or on other topics that do not relate to environmental issues.

This document, which is the second component of the Final EIR, presents the comments received during the public review period for the Draft EIR and provides written responses to those comments. A total of 13 comment letters were received during the public review period including written comments submitted at the public workshop on November 5, 2013. The indices presented at the end of this chapter list the agencies, organizations, and individuals that submitted comments on the Draft EIR. Copies of all comment letters received are provided in Appendix A of this document. Chapter 2 of this document presents individual responses prepared by LAWA relative to comments received during the review period for the Draft EIR (October 17, 2013 to December 2, 2013). Chapter 3 of this document provides corrections and additions to information presented in the Draft EIR.

As explained in more detail in Chapters 2 and 3 of the Final EIR, subsequent to circulation of the Draft EIR, LAWA has voluntarily chosen to adopt seven (7) Project Design Features (PDFs) to address community concerns. These PDFs are not triggered or warranted by any significant impacts of the Project (i.e., are not mitigation measures), but will be made requirements as part of the proposed Project and will be included in the Project Design Features, Commitments, and Mitigation Monitoring and Reporting Program as a means to confirm they have been included in the Project.

Following are the PDFs added to the Project:

WAMA-PDF-1 Quarterly Reporting*:* The tenants of the WAMA site will be required to provide to LAWA a quarterly report indicating the number, time of day, duration, and specific aircraft type of all aircraft engine high-power and low-power ground run-ups conducted during the reporting period. This reporting requirement shall also extend to any airline using the WAMA site for ground run-ups as shall be monitored by LAWA Airfield Operations. The completeness and accuracy of the report shall be attested to by a company official of the tenant.

In conjunction with application of a ground run-up reporting program, LAWA will develop a tiered penalty program applicable to violations of the LAX nighttime curfew for aircraft engine high-power ground run-ups. The penalty structure will be modeled after policies seen at other similarly situated airports (e.g., Seattle Tacoma International Airport). An example of the penalty structure includes: a Letter of Admonishment for first offense within a one year period and fines for second, third and additional offences within a one year period. It is anticipated that LAWA's development of a financial penalty program, to the extent allowed by law, will be tiered, whereby the amount of financial penalty is

progressively higher for each recurring violation, with a substantial increase in penalty amounts for repeat violations that occur within a short amount of time.

WAMA-PDF-2 APU Usage While Aircraft is Parked: Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are available, with the exceptions being: (1) if an APU is being serviced or checked relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.

WAMA-PDF-3 Aircraft Taxiing: All aircraft traveling to or from WAMA during nighttime hours (11:00 p.m. to 6:00 a.m.) must be tugged/towed and are not allowed to taxi under own power, unless otherwise directed by LAWA Airport Operations in situation-specific circumstances where taxiing is required to maintain airfield safety and efficiency.

WAMA-PDF-4 Aircraft Engine Ground Run-Ups: Aircraft engine high-power ground run-ups of any duration and low-power run-ups of five minutes or more can only occur at the onsite blast fence; and, all run-ups (high-power and low-power of any duration) are prohibited anywhere on the WAMA site between 11:00 p.m. and 6:00 a.m.

WAMA-PDF-5 Use of the WAMA Site: Aircraft parking spaces at WAMA site cannot be used for passenger boarding or deplaning (i.e., cannot be used as remote gates), except during or as a result of emergency circumstances.

***WAMA-PDF-6 Automated Run-Up Monitoring System*:** An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).

WAMA-PDF-7 Resurfacing a Portion of Imperial Highway: LAWA will work with City of Los Angeles Bureau of Street Services (LABSS) to contribute its reasonable allocable share subject to FAA approval toward resurfacing of Imperial within the City of Los Angeles's jurisdiction; if the LABSS undertakes this resurfacing project, LAWA will also work with LABSS and the Council District 11 office to schedule resurfacing work. LAWA commits to meetings with Caltrans (alongside the City of El Segundo) to discuss improvements to areas under Caltrans control but cannot make any guarantees as to Caltrans' actions.

Within Chapter 2 of the Final EIR, the format for the responses to comments presents, on a letter-by-letter basis, each comment, which is then followed immediately by a response. The comments and responses are organized and grouped into categories based on the affiliation of the commenter. The comments are presented in the following order: federal agencies, state agencies, regional agencies, local agencies, and public comments (i.e., letters from private citizens, organizations, etc.).

An alphanumeric index system is used to identify each comment and response, and is keyed to each letter and the individual comments therein. For example, the first letter within the group of federal agencies submitting comments on the Draft EIR is from the United States Department of Homeland Security, and the text of the letter is considered to have one individual comment. The subject letter was assigned the alpha-numeric label "WAMA-AF00001," representing "West Aircraft Maintenance Area-Agency-Federal-Letter No. 1." The same basic format and approach is used for the comment letters from state agencies ("AS"), local agencies ("AL"), and public comments ("PC").

The following are the prefix codes used for categorizing the comment letter types:

Letter ID Prefix	Description
AF	Federal Agency
AS	State Agency
AL	Local Agency
PC	Public Comment

To assist the reader's review and use of the responses to comments, three indices are provided. These indices provide the alpha-numeric label number, commenter name, affiliation (i.e., name of agency or organization that the author represents), and date (if provided) of each comment letter. The first index lists all of the comment letters by alpha-numeric label number, the second index lists all of the comment letters by the commenter's last name, and the third index lists all of the comment letters by the affiliation, if any, of the commenter.

Chapter 2 provides individual comments and responses, presented on a letter-by-letter basis. Each comment is typed exactly as it appears in the original comment letter. No corrections to typographical errors or other edits to the original comments were made. A copy of each original comment letter is provided in Appendix A of this document.

Immediately following each typed comment is a written response developed by LAWA. In many instances, the response to a particular comment may refer to the response(s) to another comment(s) that expressed the same concern or is otherwise related. Cross-referencing of responses uses the alpha-numeric index system described above. For example, a response may indicate "Please see Response to Comment WAMA-AL00001-2" if that response addresses the same concern expressed in a different comment.

Together with the Draft EIR, the responses to comments, along with corrections and additions to the Draft EIR and list of commenters, constitute the Final EIR. Pursuant to CEQA, the Final EIR is not circulated for another round of comments and responses. The Final EIR is presented to the decision-makers for their use in considering the proposed Project. Interested persons may comment on the Final EIR, including these responses, in the course of the decision-making process related to the proposed Project; however, LAWA is not required to provide responses to such comments.

1.2 Indices of Comment Letters

Following are three indices that organize the comment letters by letter identification number, commenter, and affiliation.

Index by Letter Identification (ID) Number

Letter ID	Commenter	Affiliation/Agency	Department	Date
WAMA-AF00001	Blackburn, Gregor	U.S. Department of Homeland Security	FEMA Region IX	11/05/2013
WAMA-AS00001	Watson, Dianna	Caltrans, District 7	IGR/CEQA Branch	12/05/2013
WAMA-AL00001	Petta, Joseph "Seph"	Shute, Mihaly & Weinberger, LLP (City of El Segundo)		12/02/2013
WAMA-AL00002	Lichman, Barbara E.	Buchalter Nemer (Cities of Inglewood, Culver City, Ontario and County of San Bernardino)		12/02/2013
WAMA-AL00003	Patonia, Michael	City of Los Angeles	Bureau of Engineering	11/06/2013
WAMA-AL00004	Cruz, Ruben	County of Los Angeles	Department of Public Works, Land Development Division	12/02/2013
WAMA-AL00005	Sainz, Carmen	County of Los Angeles	Regional Planning Commission, Airport Land Use Commission	11/20/2013
WAMA-AL00006	Chuang, James	Southern California Gas Company		11/27/2013
WAMA-PC00001	Acherman, Robert and Schneider, Denny	ARSAC		12/02/2013
WAMA-PC00002	Schneider, Denny	ARSAC		11/05/2013 (resubmittal of letter dated 10/30/2012)
WAMA-PC00003	PANATAG	None Provided		11/07/2013
WAMA-PC00004	Bowen, Eva	None Provided		11/15/2013
WAMA-PC00005	Roys, Tommy	None Provided		11/05/2013

Index by Commenter

Commenter	Affiliation/Agency	Department	Date	Letter ID
Acherman, Robert and Schneider, Denny	ARSAC		12/2/2013	WAMA-PC00001
Blackburn, Gregor	U.S. Department of Homeland Security	FEMA Region IX	11/05/2013	WAMA-AF00001
Bowen, Eva	None Provided		11/15/2013	WAMA-PC00004
Chuang, James	Southern California Gas Company		11/27/2013	WAMA-AL00006
Cruz, Ruben	County of Los Angeles	Department of Public Works, Land Development Division	12/02/2013	WAMA-AL00004
Lichman, Barbara E.	Buchalter Nemer (Cities of Inglewood, Culver City, Ontario and County of San Bernardino)		12/02/2013	WAMA-AL00002
PANATAG	None Provided		11/07/2013	WAMA-PC00003
Patonia, Michael	City of Los Angeles	Bureau of Engineering	11/06/2013	WAMA AL00003
Petta, Joseph “Seph”	Shute, Mihaly & Weinberger, LLP (City of El Segundo)		12/02/2013	WAMA-AL00001
Roys, Tommy	None Provided		11/05/2013	WAMA-PC00005
Sainz, Carmen	County of Los Angeles	Regional Planning Commission, Airport Land Use Commission	11/20/2013	WAMA-AL00005
Schneider, Denny	ARSAC		11/05/2013 (resubmittal of letter dated 10/30/2012)	WAMA-PC00002
Watson, Dianna	Caltrans, District 7	IGR/CEQA Branch	12/05/2013	WAMA-AS00001

Index by Affiliation

Affiliation/Agency	Department	Commenter	Date	Letter ID
ARSAC		Acherman, Robert and Schneider, Denny	12/2/2013	WAMA-PC00001
ARSAC		Schneider, Denny	11/05/2013 (resubmittal of letter dated 10/30/2012)	WAMA-PC00002
Buchalter Nemer (Cities of Inglewood, Culver City, Ontario and County of San Bernardino)		Lichman, Barbara E.	12/02/2013	WAMA-AL00002
Caltrans, District 7	IGR/CEQA Branch	Watson, Dianna	12/05/2013	WAMA-AS00001
City of Los Angeles	Bureau of Engineering	Patonia, Michael	11/06/2013	WAMA-AL00003
County of Los Angeles	Department of Public Works, Land Development Division	Cruz, Ruben	12/02/2013	WAMA-AL00004
County of Los Angeles	Regional Planning Commission, Airport Land Use Commission	Sainz, Carmen	11/20/2013	WAMA-AL00005
Southern California Gas Company		Chuang, James	11/27/2013	WAMA-AL00006
Shute, Mihaly & Weinberger, LLP (City of El Segundo)		Petta, Joseph “Seph”	12/02/2013	WAMA-AL00001
U.S. Department of Homeland Security	FEMA Region IX	Blackburn, Gregor	11/05/2013	WAMA-AF00001
None Provided		Bowen, Eva	11/15/2013	WAMA-PC00004
None Provided		PANATAG	11/07/2013	WAMA-PC00003
None Provided		Roys, Tommy	11/05/2013	WAMA-PC00005

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2. COMMENTS AND RESPONSES

Refer to Appendix A of the Final Environmental Impact Report (EIR) for a copy of the comment letters received on the West Aircraft Maintenance Area (WAMA) Draft EIR. The following provides the comments and individual responses to comments on the WAMA Draft EIR:

WAMA-F00001 Blackburn, Gregor U.S. Department of Homeland Security, FEMA Region IX 11/5/2013

WAMA-AF00001-1

Comment: This is in response to your request for comments on the Notice of Availability of Draft Environmental Impact Report (EIR) and LAX Plan Compliance Review for the West Aircraft Maintenance Area Project in the City of Los Angeles.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Los Angeles (Community Number 065043) and City of Los Angeles (Community Number 060137), Maps revised September 26, 2008. Please note that the City of Los Angeles, Los Angeles County, California are participants in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/ business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please

contact the local community's floodplain manager for more information on local floodplain management building requirements. The Los Angeles City floodplain manager can be reached by calling Gary L. Moore, City Engineer, at (213) 485-4935. The Los Angeles County floodplain manager can be reached by calling George De La O, Senior Civil Engineer, at (626) 458-7155.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of Mitigation staff at (510) 627-7260.

Response: As indicated in Section IX of the Initial Study for the West Aircraft Maintenance Area Project (Appendix A of the LAX West Aircraft Maintenance Area Project Draft EIR), the Project site is not located within a floodplain, as mapped and identified under the National Flood Insurance Program of the Federal Emergency Management Agency.

WAMA-AS00001 Watson, Dianna **State of California, Department of Transportation, District 7, Office of Transportation Planning, IGR/CEQA Branch** **12/5/2013**

WAMA-AS00001-1

Comment: The California Department of Transportation (Caltrans) hereby acknowledges receipt of the Draft Environmental Impact Report (DEIR) prepared for the proposed LAX West Aircraft Maintenance Project. Caltrans has reviewed the traffic analysis included in the DEIR and has the following comments.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. Please see Responses to Comments WAMA-AS00001-2 through WAMA-AS00001-7 below.

WAMA-AS00001-2

Comment:

- Caltrans acknowledges that the proposed West Aircraft Maintenance project is not expected to generate enough traffic to significantly impact the surrounding State highway system (Sepulveda Boulevard (State Route 1), I-405, I-105). However, due to existing traffic congestion and various other construction projects within LAX and its vicinity, the added traffic is expected to be cumulative significant at various intersections along Sepulveda Boulevard (per Table 4.7-8).

Response: As shown in Table 4.7-8 on page 4.7-37, and in Table 4.7-9 on page 4.7-39 in Chapter 4.7, *Construction Surface Transportation*, of the LAX West Aircraft Maintenance Area Project (WAMA) Draft EIR, it is not anticipated that the proposed Project would produce significant impacts under either the Baseline plus Project or Cumulative Traffic scenarios. Although there are cumulative impacts denoted in Table 4.7-9, the Project contribution is not considered to be cumulatively considerable at any of these intersections.

WAMA-AS00001-3

Comment:

- Caltrans is now aware that LAWA has established a "Ground Transportation/Construction Office" referred to as the CALM team. Please require the CALM team to coordinate and obtain Caltrans' approval for any detour plans and lanes [sic] closures on Sepulveda Boulevard.

Response: As described on page 4.7-34 in Chapter 4.7, *Construction Surface Transportation*, of the WAMA Draft EIR, in accordance with LAX Master Plan Commitment C-1, it is anticipated that a ground transportation/construction coordination office will be established for the proposed Project. Furthermore, the LAWA Construction Coordination and Logistics Management (CALM) team, discussed in detail in Section 4.7.3.8 of the WAMA Draft EIR, provides for the implementation of LAX Master Plan Commitment C-1. Although no detour plans or lane closures are anticipated for Sepulveda Boulevard as a component of this Project, LAWA will coordinate with Caltrans related to approval of any detour plans or lane closures on Sepulveda Boulevard if that were to be required.

WAMA-AS00001-4

Comment:

- ST-18 states that a "complete construction traffic plan will be developed to designate detour and/or haul routes, variable message and other sign locations, communications methods with airport passengers, construction deliveries, construction employee shift hours, construction employee parking locations and

other relevant factors". Caltrans requests an opportunity to review and participate in the development of these construction management plans.

Response: The main requirements pertaining to construction traffic plans, such as for construction deliveries, designated truck delivery hours, construction employee shift hours, designated truck/haul routes, are delineated in the Master Plan commitments presented in Section 4.7.7 of the WAMA Draft EIR. As indicated in discussion that follows LAX Master Plan Commitments C-1 (Establishment of a Ground Transportation/Construction Coordination Office) and ST-18 (Construction Traffic Management Plan), and is further described in Section 4.7.3.3, the duties of the LAWA CALM team includes coordination with outside agencies as individual construction projects necessitate. This coordination and consultation effort includes Caltrans, as appropriate.

WAMA-AS00001-5

Comment:
- Please be reminded that oversized construction truck deliveries expected to utilize State highways will need a transportation permit and possibly a California Highway Patrol (CHP) escort.

Response: All contractors are expected to abide by State regulations pertaining to the operation of oversized vehicles.

WAMA-AS00001-6

Comment:
- Due to recurrent traffic congestion on I-405 and I-105 during peak commuting periods, please schedule heavy-duty construction-related trucks away from these periods as much as possible.

Response: As described on page 4.7-35 in Chapter 4.7, *Construction Surface Transportation*, of the WAMA Draft EIR, in accordance with LAX Master Plan Commitments ST-12 and ST-14, as a way of controlling the arrival and departure times of construction-related truck and construction employee traffic associated with the Project truck delivery and construction employee shift hours would be scheduled to avoid the peak hours of 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM.

WAMA-AS00001-7

Comment:
- Please continue to coordinate all traffic analysis associated with development of all project within the LAX Master Plans with Caltrans. Caltrans is concern [sic] that future development at LAX may worsen operation of nearby I-405 and I-105 and that no comprehensive mitigation improvements are planned.

Response: In conjunction with comprehensive planning programs for long-term future improvements at LAX, as reflected in the LAX Master Plan and the LAX Specific Plan Amendment Study (SPAS), the EIRs that are associated with those plans address areawide traffic impacts and set forth comprehensive mitigation programs (such as the mitigation monitoring and reporting programs associated with the following LAX Master Plan project-specific EIRs: South Airfield Improvement Project EIR, Crossfield Taxiway Project EIR; and, Bradley West Project EIR). As noted under Response to Comment WAMA-AS00001-3 and WAMA-AS00001-4 above, and further described in Section 4.7.3.3 of the WAMA Draft EIR, based on LAWA's comprehensive mitigation associated with traffic, LAWA established the CALM team to monitor construction traffic and coordinate with outside agencies as individual construction projects necessitate. This coordination and consultation effort includes Caltrans, as appropriate.

In addition, as noted in Response to Comment WAMA-AS00001-2 above, the analysis in

the WAMA Draft EIR determined that the proposed Project would not produce significant impacts under the Baseline plus Project or Cumulative Traffic scenarios, and the Project contribution was not considered to be cumulatively considerable at any of the intersections where cumulative impacts were noted.

WAMA-AL00001 Peta, Joseph **Shute, Mihaly & Weinberger LLP for the City of El Segundo** **12/2/2013**

WAMA-AL00001-1

Comment: We submit this letter on behalf of our client, the City of El Segundo, to comment on the Draft Environmental Impact Report ("DEIR") recently released by Los Angeles World Airports ("LAWA") for the West Aircraft Maintenance Area ("WAMA" or the "Project") at Los Angeles International Airport ("LAX"). As LAWA is aware, El Segundo has been an active participant in the planning process for the Project and expects to be actively involved in further follow-up discussions.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. Please see Responses to Comments WAMA-AL00001-1 through AL00001-62 below for a response to all comments on the LAX West Aircraft Maintenance Area Project (WAMA) Draft EIR submitted by the commenter.

WAMA-AL00001-2

Comment: As explained below, the DEIR is legally inadequate under the standards of the California Environmental Quality Act ("CEQA"), Public Resources Code sections 21000 et seq. If revised to provide all of the required evidence and analyses, the DEIR could well determine that the Project will have potentially significant environmental impacts that cannot be avoided through mitigation, particularly noise impacts resulting from increased operations near the airport's border with El Segundo.

Response: Please see Responses to Comments WAMA-AL00001-3 through AL00001-62 below for detailed responses to all comments submitted by the commenter. As indicated in these responses, the analyses in the WAMA Draft EIR are adequate and consistent with CEQA requirements, and facilitated public review of the Project. LAWA has carefully reviewed all of the comments provided and prepared written responses, supported by substantial evidence, for all of the comments. In light of the additional information provided through the subject responses to comments, no new significant impacts, substantial increases in the severity of previously disclosed significant impacts, or significant impacts that cannot be avoided through mitigation have been identified. Please see, in particular, Responses to Comments WAMA-AL00001-8 through WAMA-AL00001-11 and WAMA-AL00001-14, 16, 20, 21, and 22 below for a detailed discussion of operational noise impacts relative to El Segundo. As also further discussed in the responses below, LAWA is willing to add, as Project Design Features (PDFs), various use restrictions and additional design elements to the WAMA project relative to El Segundo's concerns, even though such measures are not warranted under CEQA (i.e., there are no significant environmental impacts that require such measures as mitigation). Such design features include the following, which are further discussed in the relevant responses to comments below:

> ***WAMA-PDF-1 Quarterly Reporting****: The tenants of the WAMA site will be required to provide to LAWA a quarterly report indicating the number, time of day, duration, and specific aircraft type of all aircraft engine high-power and low-power ground run-ups conducted during the reporting period. This reporting requirement shall also extend to any airline using the WAMA site for ground run-ups as shall be monitored by LAWA Airfield Operations. The completeness and accuracy of the report shall be attested to by a company official of the tenant.*
>
> *In conjunction with application of a ground run-up reporting program, LAWA will develop a tiered penalty program applicable to violations of the LAX nighttime curfew for aircraft engine high-power ground run-ups. The penalty structure will be modeled after policies seen at other similarly situated airports (e.g., Seattle Tacoma International Airport). An example of the penalty structure includes: a Letter of*

Admonishment for first offense within a one year period and fines for second, third and additional offences within a one year period. It is anticipated that LAWA's development of a financial penalty program, to the extent allowed by law, will be tiered, whereby the amount of financial penalty is progressively higher for each recurring violation, with a substantial increase in penalty amounts for repeat violations that occur within a short amount of time.

WAMA-PDF-2 APU Usage While Aircraft is Parked: *Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are available, with the exceptions being: (1) if an APU is being serviced or checked relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.*

WAMA-PDF-3 Aircraft Taxiing: *All aircraft traveling to or from WAMA during nighttime hours (11:00 p.m. to 6:00 a.m.) must be tugged/towed and are not allowed to taxi under own power, unless otherwise directed by LAWA Airport Operations in situation-specific circumstances where taxiing is required to maintain airfield safety and efficiency.*

WAMA-PDF-4 Aircraft Engine Ground Run-Ups: *Aircraft engine high-power ground run-ups of any duration and low-power run-ups of five minutes or more can only occur at the onsite blast fence; and, all run-ups (high-power and low-power of any duration) are prohibited anywhere on the WAMA site between 11:00 p.m. and 6:00 a.m.*

WAMA-PDF-5 Use of the WAMA Site: *Aircraft parking spaces at WAMA site cannot be used for passenger boarding or deplaning (i.e., cannot be used as remote gates), except during or as a result of emergency circumstances.*

WAMA-PDF-6 Automated Run-Up Monitoring System: *An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).*

WAMA-PDF-7 Resurfacing a Portion of Imperial Highway: *LAWA will work with City of Los Angeles Bureau of Street Services (LABSS) to contribute its reasonable allocable share subject to FAA approval toward resurfacing of Imperial within the City of Los Angeles's jurisdiction; if the LABSS undertakes this resurfacing project, LAWA will also work with LABSS and the Council District 11 office to schedule resurfacing work. LAWA commits to meetings with Caltrans (alongside the City of El Segundo) to discuss improvements to areas under Caltrans control but cannot make any guarantees as to Caltrans' actions.*

WAMA-AL00001-3

Comment: The Draft EIR's inadequacies begin with the fact that the document fails to accurately and completely describe the Project and its operations once constructed. For those aspects of the Project that the Draft EIR does describe, LAWA assumes operation levels that would result in less-than-significant impacts, but has not committed to maintain those levels through appropriate enforcement and monitoring. Thus, LAWA has not demonstrated that the impacts analysis correlates with the *actual* level of future operations likely at the WAMA.

Response: Chapter 2, *Project Description,* of the WAMA Draft EIR, provides a detailed and complete description of the proposed Project including the number and type of facilities, existing conditions, objectives, surrounding land uses, a conceptual site plan, and information on construction phasing. As described therein, the proposed Project would not increase passenger or gate capacity and would not increase flights and/or aircraft operations at LAX, but would consolidate, relocate, and modernize some existing maintenance facilities and activities (including parking areas for existing aircraft and employees). Chapter 2, *Project Description,* of the WAMA Draft EIR also includes operational assumptions for the proposed Project. Rather than assuming operational levels that would result in less-than-significant impacts as suggested by the commenter, LAWA's assumptions regarding operational levels were carefully and conservatively developed based on the characteristics of the airfield and the proposed facilities in order to insure that the potential environmental impacts of the Project would be fully accounted for in the WAMA Draft EIR.

Key operational assumptions include estimates that 60 engine run-ups may occur annually (five monthly) at the Project site. Such estimates were developed in light of ground run-up activities that presently occur at LAX, based on interviews with representatives of the airline companies conducting ground run-up activities at LAX, and represent a reasonable and appropriate assumption of the number of engine run-ups expected to occur at the Project site in the foreseeable future.

Regarding aircraft movement to the Project site, as discussed in Chapter 2*, Project Description,* and Chapter 4.5, *Noise,* of the WAMA Draft EIR, implementation of the proposed Project would not increase the number of aircraft operations at LAX, but would result in a change to the normal taxi route that certain aircraft currently take (i.e., as the proposed Project provides for the consolidation and relocation of existing aircraft maintenance and remain overnight (RON)/remain all day (RAD) activities to a new location in the southwest portion of the airport, certain aircraft may travel a different taxi route than what they do today under baseline conditions). Therefore, assumptions associated with aircraft movement to and from the Project site, as specifically described in Section 2.5.2 (in Chapter 2, *Project Description*) of the WAMA Draft EIR, are based on the number of spaces available at the site to accommodate aircraft and aircraft movement based on typical airline operations at LAX, with consideration given to the airlines within the western area of LAX whose maintenance operations and RON/RAD aircraft parking are being consolidated. Additionally, the assumptions take into consideration other existing RON/RAD aircraft parking activities at LAX, such as those that occur at the West Remote Pads/Gates and at the Central Terminal Area (CTA), which can become crowded during overnight periods, and RON/RAD in other areas such as on the west side of Taxiway R.

Please see, in particular, Responses to Comments WAMA-AL00001-8 through WAMA-AL00001-11 and WAMA-AL00001-14, 16, 20, 21, and 22 below below for a detailed discussion on operational noise assumptions and potential impacts.

WAMA-AL00001-4

Comment: Second, the Project as described in the DEIR is not consistent with the LAX Master Plan. As you know, the Master Plan was the subject of major litigation and a negotiated settlement, and was intended to serve as the guide for the airport's future development. The Project, however, would occupy land designated in the Master Plan for an entirely different use. As discussed below, this deviation calls into question the purpose of the Master Plan and LAWA's commitment to following it.

Response: Consistency of the Project with the LAX Master Plan was fully evaluated in Chapter 4.6, *Land Use*, of the WAMA Draft EIR. As stated in Section 4.6.3.1.2 of the WAMA Draft EIR, "The LAX Master Plan Program serves as the strategic framework for long-term airport development to be consulted by LAWA as it formulates and processes site-specific projects

under the LAX Master Plan Program." The LAX Master Plan Program provides a conceptual framework (or as the commenter noted – as the guide) for future improvements at LAX. As addressed on pages 4.6-9 through 4.6-15, and as shown in Figure 4.6-3, Summary of Refinements to the LAX Master Plan, the changes in the locations of the Proposed Maintenance Facility and West Employee Parking area would not materially change the conceptual framework for development in the Project area as set forth in the LAX Master Plan Program. The proposed Project would be consistent with the LAX Master Plan Program by providing an aircraft maintenance area in the southwest portion of the airport. While the proposed Project would result in a slightly different configuration and would exchange the location of the West Employee Parking area, it would not change the size and number of parking spaces proposed or otherwise constrain future development of the facility as envisioned in the LAX Master Plan Program. As further discussed below under Response to Comment AL00001-19, the Project does not conflict with the LAX Master Plan, and potential for impacts on the physical environment associated with the Project and refinements to the LAX Master Plan have been fully accounted for.

Additionally, it is important to note that the WAMA Draft EIR addresses a scenario that assumes development of aircraft maintenance improvements as delineated in the LAX Master Plan, notwithstanding the conceptual nature of the Master Plan as noted above. That scenario is presented and addressed in Section 5.6.2 of the WAMA Draft EIR as the No Project-Existing LAX Master Plan Alternative. As discussed therein, that alternative scenario would only partially meet the project objectives and would not avoid or substantially reduce any significant impacts associated with the currently proposed project. In fact, implementation of that alternative would introduce the potential for significant impacts related to hazardous materials; specifically, as related to possibly interfering with the existing contaminated groundwater remediation programs, which would require the formulation of new additional mitigation measures beyond those otherwise required for the proposed Project.

WAMA-AL00001-5

Comment: Third, the DEIR raises serious questions about the Project's impacts, particularly its noise impacts on El Segundo. The DEIR entirely disregards El Segundo's noise ordinance as a standard of significance in analyzing the Project's noise impacts, and fails to fully account for low-frequency noise impacts from anticipated engine run-ups at the WAMA. Dr. Sanford Fidell's comments ("Fidell Memo") on the DEIR's noise analysis are attached to this letter as Exhibit 1 and incorporated in their entirety herein.

Response: Please see Response to Comment WAMA-AL00001-20 regarding the El Segundo noise ordinance and Response to Comment WAMA-AL00001-21 regarding low frequency noise. The response demonstrates that the noise impacts were adequately analyzed in the Draft EIR.

WAMA-AL00001-6

Comment: This letter, which incorporates by reference our October 30, 2012 comments on the Notice of Preparation ("NOP"), attached as Exhibit 2, explains these concerns and other shortcomings of the DEIR. El Segundo calls on LAWA to revise the DEIR to evaluate fully the potentially significant impacts of the Project on the City's residents.

Response: Please see Responses to Comments WAMA-AL00001-7 through AL00001-62 regarding the NOP comments. The comments do not warrant revision or recirculation of the Draft EIR.

WAMA-AL00001-7

Comment: I. **The DEIR's Description of the Project is Inadequate.**

LAWA must describe the Project completely and accurately in the DEIR. "An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR."

San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus (1994) 27 Cal.App.4th 713, 727.

Response: Chapter 2, *Project Description,* of the WAMA Draft EIR, provides a detailed and complete description of the proposed Project including the number and type of facilities, existing conditions, objectives, surrounding land uses, a conceptual site plan, and information on construction phasing. Please see Response to Comment WAMA-AL00001-8, 11, 12, 15 and WAMA-AL00001-16 regarding adequacy of the Project Description.

WAMA-AL00001-8

Comment: A. The DEIR Does Not Provide Substantial Evidence to Support Its Assumptions About WAMA Operations

The DEIR frequently states that the assumptions underlying its analysis are "conservative." To the contrary, the Project description is misleadingly vague and open-ended. LAWA uses arbitrary assumptions about WAMA operations in order to conclude that nearly all of the WAMA's impacts will be less than significant. The assumptions in the DEIR are not supported by substantial evidence, and LAWA has not committed to monitor, maintain, or enforce the operation levels on which its assumptions are based. Without a commitment to monitor, maintain, and enforce operation levels that form the basis of the DEIR's impacts analysis, the analysis lacks credibility and violates CEQA.

Response: As reflected by the discussion in Section 2.4, Project Objectives, of the WAMA Draft EIR, the proposed Project is intended and designed to: consolidate, relocate, and modernize certain the existing aircraft maintenance facilities at LAX; provide for more efficient and effective maintenance of existing aircraft at the airport; provide aircraft maintenance hangars and aircraft parking positions for a variety of aircraft sizes at one location; provide RON/RAD aircraft parking that can also support routine servicing and maintenance of aircraft; and support consistency with the LAX Master Plan by providing an aircraft maintenance area in the southwest portion of the airport. These aspects of the project would not increase aircraft maintenance activities and aircraft parking at LAX than what otherwise occurs under existing conditions. As further described below in Response to Comment WAMA-AL00001-16, the aircraft maintenance activity levels anticipated to occur at the WAMA site are based on the reasonable assumption that aircraft maintenance activities presently occurring at the Qantas maintenance area and at the US Airways maintenance area would be relocated to the WAMA site in light of the fact that those two maintenance areas will soon be removed/displaced. That assumption is consistent with the objective of the proposed Project to consolidate, relocate, and modernize certain existing aircraft maintenance facilities at LAX. As also discussed in Response to Comment WAMA-AL00001-16, the activity levels associated with RON/RAD aircraft parking at the WAMA site are defined by a detailed delineation of the nature, number, timing, and origin and destination of specific aircraft types traveling to and from the WAMA site during the course of an average day, based on the types of activities occurring elsewhere at the airport today. Other than simply asserting that WAMA site operations levels identified in the Draft EIR are too low, the commenter provides no bases or supporting facts for how, why, or to what extent the assumed operations levels should be higher. The operations levels identified in the Draft EIR reflect reasonable assumptions based on existing/observed operations at LAX and the fact that the essence of the project is to consolidate, relocate, and modernize certain existing aircraft maintenance facilities at LAX, as well as provide RON/RAD parking. It is not necessary for LAWA to "monitor, maintain, or enforce" those reasonable assumptions as suggested by the commenter.

WAMA-AL00001-9

Comment: Assumed Operation Levels Must Be Actual Levels: Although the DEIR does not clearly indicate who will use the WAMA, it suggests that LAWA will lease certain uses of the WAMA to tenants rather than make the WAMA available to airlines on a "first come, first served" basis.

See, e.g., DEIR at 2-10 (hangar to be used by "eventual tenant"). The DEIR must clarify the anticipated use arrangement because it relates directly to the eventual use of the WAMA, including the assumptions about operations that form the basis for the DEIR. If LAWA has identified one or more tenants for the WAMA-such as Qantas and U.S. Airways, whom El Segundo suspects are intended WAMA tenants based on Table 4.5-9 of the DEIR-the DEIR should confirm this and provide information on the tenancies. Indicating that tenants have been identified or confirmed would also provide evidence of a present need for the WAMA, which, as noted below, LAWA has not sufficiently demonstrated.

Response: Please see Response to Comment WAMA-AL00001-8 above and WAMA-AL00001-16 below regarding the bases for the operations levels assumed in the Draft EIR for the WAMA site, and acknowledgement that aircraft maintenance activities presently occurring at the Qantas and U.S. Airways site were, in light of pending removal of those facilities due to displacement, reasonably assumed to relocate to the WAMA site.

WAMA-AL00001-10

Comment: To guarantee that its assumptions about WAMA operations and the DEIR itself are accurate, LAWA should include operation controls as terms of any leases with future tenants. Such operation controls should include the number of engine run-ups the tenant may conduct per month or year (not to exceed a total of 60 run-ups per year by all tenants combined, as indicated by the DEIR), and the times of day run-ups may be conducted, observing LAWA's existing run-up curfew from 11 p.m. to 6 a.m. See LAWA's Aircraft Noise Abatement Operating Procedures and Restrictions at 5-8 through 5-9, attached as Exh. 3. Terms should also include monthly run-up and other maintenance reports by tenants; a commitment by WAMA tenants to use ground power instead of auxiliary power units, except when APUs are being maintained (see DEIR at 2-15, indicating RON/RAD spaces will allow full aircraft functionality without running APUs); a commitment by ADG VI carriers not to exceed 80% power during engine run-ups (as indicated by Table 4.5-9 of the DEIR); and a commitment to tow aircraft to and from the WAMA, rather than taxi under aircraft power, as described in the DEIR. See DEIR at 4.5-32.

If LAWA cannot ensure that the operation levels it assumes for purposes of the DEIR's impacts analysis will be the actual operation levels (or at least reasonably approximate them), then it must revise the DEIR to use "worst case scenario" operation levels for all impacts, including 100%-power engine run-ups by A380 and B-747 aircraft and 100% taxiing to and from the WAMA. See Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 263, 279, 282 (environmental review must include all of a project's potential impacts); City of Redlands v. County of San Bernardino (2002) 96 Cal.App.4th 398, 309 (environmental review must consider all activities permitted by project).

Response: As discussed above in Response to Comment WAMA-AL00001-8, the nature and level of activities anticipated to occur at the WAMA site are based on reasonable assumptions in light of actual conditions at LAX. Relative to the nature and number of aircraft engine high-power run-ups assumed in the WAMA Draft EIR impact, LAWA developed those assumptions in consultation with the existing operators of the aircraft maintenance areas anticipated to soon be displaced and assumed to relocate to the WAMA site. The run-up assumptions are based on actual activity levels that occurred over many months and, based on recent communications with each of the existing maintenance area operators, are still considered current and valid, if not conservative. In January 2014, Qantas airlines indicated that there have been a total of eight (8) high-power run-ups over the past 12 months at their existing aircraft maintenance area at LAX.[1] A representative of US Airways aircraft maintenance operations at LAX reaffirmed in late-January 2014 that few aircraft engine run-ups occur by

[1] Andy Clayton, Engineering Ops Manager, LAX Engineering, LMO Qantas Airways Limited, Personal Communication, January 31, 2014.

US Airways at LAX on the order of 1-2 high-power ground run-ups per month.[2]

Combined, that averages approximately two to three (2-3) run-ups per month, which is actually less than the five (5) run-ups per month assumed in the Draft EIR impacts analysis to occur at the WAMA site. Conversely, if the number of run-ups at the WAMA site were more, say twice as many or three times as many, than the number assumed in the Draft EIR analysis, the associated increases in noise levels at the sensitive receptor locations, compared to existing conditions, would still be well below the 1.5 dB CNEL threshold of significance. As compared to the maximum increase of 0.2 dB CNEL associated with the run-up activity assumed in the Draft EIR, as reflected in Table 4.5-10 of the Draft EIR, the maximum CNEL increase associated with twice the amount of run-ups than assumed in the DEIR would only be approximately 0.6 dB, and the maximum CNEL increase associated with three times the amount of run-ups than assumed in the DEIR would only be approximately 0.8 dB.

Regarding the times of day that run-ups may be conducted at the WAMA site, such activities are, and would continue to be, regulated by the LAX Rules and Regulations, which establishes the curfew hours of 11:00 p.m. to 6:00 a.m., as correctly noted by the commenter. There is nothing about the proposed Project that would change that existing requirement.

Regarding the commenter's suggestion that the lease terms of the WAMA tenants include a requirement for monthly run-up and other maintenance reports, there are no significant environmental impacts associated with run-up and maintenance activities at the WAMA site that warrant such mitigation. Notwithstanding, LAWA is willing to require tenants of the WAMA site to abide by the following requirement:

> ***WAMA-PDF-1 Quarterly Reporting****: The tenants of the WAMA site will be required to provide to LAWA a quarterly report indicating the number, time of day, duration, and specific aircraft type of all aircraft engine high-power and low-power ground run-ups conducted during the reporting period. This reporting requirement shall also extend to any airline using the WAMA site for ground run-ups as shall be monitored by LAWA Airfield Operations. The completeness and accuracy of the report shall be attested to by a company official of the tenant.*
>
> *In conjunction with application of ground run-up reporting program, LAWA will develop a tiered penalty program applicable to violations of the LAX nighttime curfew for aircraft engine high-power ground run-ups. The penalty structure will be modeled after policies seen at other similarly situated airports (e.g., Seattle Tacoma International Airport). An example of the penalty structure includes: a Letter of Admonishment for first offense within a one year period and fines for second, third and additional offences within a one year period. It is anticipated that LAWA's development of a financial penalty program, to the extent allowed by law, will be tiered, whereby the amount of financial penalty is progressively higher for each recurring violation, with a substantial increase in penalty amounts for repeat violations that occur within a short amount of time.*

Regarding the commenter's suggestion that the lease terms of the WAMA tenants include commitment to use ground power instead of auxiliary power units (APUs), there are no significant environmental impacts associated with APU usage at the WAMA site that warrant such mitigation. Notwithstanding, LAWA is willing to require tenants of the WAMA site to abide by the following requirement:

> ***WAMA-PDF-2 APU Usage While Aircraft is Parked:*** *Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are*

[2] Bill Baggelaar, Manager of Line Maintenance, U.S. Air, Personal Communication, February 3, 2014.

available, with the exceptions being: (1) if an APU is being serviced or checked relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.

Regarding the commenter's suggestion that the lease terms of the WAMA tenants include a requirement that all aircraft traveling to or from the WAMA site be tugged or towed, rather than taxiing under their own power, there are no significant environmental impacts associated with the amount of aircraft taxiing accounted for in the Draft EIR, which is based on reasonable assumptions in light of actual conditions at LAX (see Response to Comment WAMA-AL00001-16); hence, there is no impact that warrants such mitigation. Additionally, it should be noted that even if all of the daily aircraft movements to and from the WAMA site occurred as taxiing under power (i.e., no tugging/towing of aircraft), the associated air quality and noise impacts would still be less than significant. Table 2-1, presents the estimated emissions associated with a scenario that assumes all 26 daily aircraft movements described on pages 2-13 and 2-14 of the WAMA Draft EIR occur as taxi operations.

Similarly, assuming all 26 daily aircraft movements described on pages 2-13 and 2-14 of the WAMA Draft EIR occur as taxi operations, the resultant noise impacts would be as follows:

Average Hourly Ambient Daytime and Nighttime Noise Levels – Under this scenario, the taxiing noise levels at the southern edge of Westchester directly north of the nearest taxi route were estimated to be approximately 41.7 dBA in the daytime and 38.9 dBA at night. Based on existing ambient noise levels in the southern portion of Westchester being approximately 63-64 dBA in the day and 59-60 dBA at night, the aircraft taxiing noise would be substantially less than existing ambient noise levels, and when added to existing ambient noise levels, would increase the existing ambient noise levels by approximately 0.02 dB in the daytime and 0.03 dB at night. At the northern edge of El Segundo directly south of the nearest taxi route, the taxiing noise levels are estimated to be approximately 44.6 dBA in the daytime and 42.5 dBA at night. Existing ambient noise levels in the northern portion of El Segundo near LAX are approximately 65 dBA or greater in the day and 60 dBA or greater at night. The aircraft taxiing noise would be substantially less than existing ambient noise levels, and when added to existing ambient noise levels, would increase the existing ambient noise levels by approximately 0.04 dB in the daytime and 0.08 dB at night.

Table 2-1

Emissions Associated With All Aircraft Movements To and From WAMA Site Occur as Taxiing
(Pounds per Day)

Emission Source	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Regional Emissions						
Aircraft Taxi	17	13	80	3	<1	<1
SCAQMD Significance Threshold	55	55	550	150	150	55
Over/(Under)	(38)	(42)	(470)	(147)	(150)	(55)
Exceed Threshold?	No	No	No	No	No	No

Source: CDM Smith, 2014.

CNEL – Under this scenario, the resultant CNEL values would be 47.1 dBA at the noise sensitive uses north of the nearest taxi route (Westchester), and 48.8 dBA at the south of the nearest taxi route in the City of El Segundo. When added to the existing CNELs in Westchester and El Segundo, these taxiing-related CNEL values would increase the existing CNEL in Westchester by approximately 0.07 dB and increase the existing CNEL in El Segundo by approximately 0.05 dB. In both cases, the increase would be substantially less than the threshold of significance of a 1.5 dB increase; hence, the increased taxiing noise impact under this scenario would be less than significant.

Notwithstanding the above, LAWA is willing to require tenants of the WAMA site a requirement to abide by the following requirement:

WAMA-PDF-3 Aircraft Taxiing: *All aircraft traveling to or from WAMA during nighttime hours (11:00 p.m. to 6:00 a.m.) must be tugged/towed and are not allowed to taxi under own power, unless otherwise directed by LAWA Airport Operations in situation-specific circumstances where taxiing is required to maintain airfield safety and efficiency.*

Regarding the commenter's suggestion that the lease terms of the WAMA tenants include a restriction that aircraft engine ground run-ups by ADG VI carriers not exceed 80 percent power during run-ups, such a restriction is unnecessary, inappropriate, and not in the interest of public safety. The commenter appears to have based that requested limitation on the engine run-up power setting shown for the Airbus A380 in Table 4.5-9 of the WAMA Draft EIR. That assumption reflects the actual power setting used by Qantas in performing run-ups on the A380 at LAX. An aircraft engine ground run-up is primarily intended and designed to test the performance of an aircraft engine following certain maintenance and repair activities on that engine, in order to confirm that its performance meets very specific requirements before that aircraft is allowed back into regular service. In the event that an engine run-up requires a power setting greater than 80 percent in order to sufficiently test and confirm the acceptable performance of that engine following a particular type of service or repair, it would be inappropriate for LAWA to require the lower power setting and completing an engine run-up at less than a proper power setting is not in the best interest of public safety. Moreover, it should be noted that although the aircraft engine power setting for the engine being tested indicated 80 percent for certain engines and 100 percent for the rest, the noise level estimates calculated for engine run-ups conservatively assumed all engines would be tested at "high-power" (i.e., 100 percent), which is the level used at take-off.[3]

WAMA-AL00001-11

Comment: Engine Run-ups: The DEIR omits crucial information about the timing and frequency of anticipated engine run-ups during run-up curfew hours. As an initial matter, all information about anticipated levels of operations at the WAMA, especially the kinds of operations that are of greatest concern to neighbors such as El Segundo, should be included in the Project description.

Table 4.5-9 of the DEIR, showing the anticipated number of annual WAMA run-ups by time of day (daytime, evening, and night), indicates that Qantas ADG VI aircraft (A380 and B-747, the largest aircraft at LAX) will not conduct engine run-ups between 7 p.m. and 7 a.m. As these large aircraft are the only aircraft anywhere at LAX that, according to the table, will not conduct run-ups during evenings or nights, the DEIR should explain this anomaly, particularly since Table 4.5-11 indicates that A380 and B-747 run-ups at the WAMA may result in noise

[3] Eugene Reindel, Vice President, Harris Miller Miller & Hanson Inc., Personal Communication, February 3, 2014.

levels as high as 80 dBA at some locations in El Segundo. Otherwise, the data appears to have been excluded to support a finding of less-than-significant noise impacts. Footnote 1

Footnote 1. Similarly, Table 4.5-9 shows that the A380 and B-747 are among the only aircraft at LAX (and the only aircraft anticipated at the WAMA) that will conduct run- ups at 80% power, as opposed to 100%. The DEIR does not explain the reason for the less-than-full power setting. Unless it is an implicit commitment to enforce 80%-power run-ups of ADG VI aircraft at the WAMA-in which case LAWA must be explicit about enforcing this limit-the DEIR should explain why this assumption was used.

If, on the other hand, the absence of evening and nighttime run-ups by these aircraft implies a commitment by LAWA to daytime-only ADG VI run-ups-an explanation that would justify using this assumption as the basis for the DEIR's impacts analysis-then the DEIR must explicitly make this commitment part of an enforceable mitigation measure. Any lease with future WAMA tenants, such as Qantas, should include a mandatory run-up schedule with penalties for violations.

Table 4.5-9 also indicates that U.S. Airways will conduct 15.6 annual run- ups between 10 p.m. and 7 p.m. While this time range reflects the CNEL nighttime "penalty" period the DEIR uses to evaluate noise impacts, it conceals whether U.S. Airways run-ups would occur during curfew hours. The table must be revised to indicate when all WAMA run-ups will occur relative to curfew hours.

Finally, it is unclear whether the DEIR's estimate of annual engine run-ups at the WAMA takes into account only "high-power" run-ups, or includes "low-power" run-ups as described on page 2-10 of the DEIR. While high-power run-ups require the use of a blast fence or ground run-up enclosure ("GRE"), low-power run-ups may be performed at or above engine idle and do not necessarily require installed safety devices. See DEIR at 2-10. If WAMA operations may include low-power run-ups in the apron area in addition to high-power run-ups at the blast fence, the DEIR must say so and include the potential impacts in its analysis.

Response: Section 2.5.3, *Aircraft Maintenance Hangars,* of the WAMA Draft includes a description of the aircraft engine ground run-up activities anticipated to occur at the WAMA site, including a discussion of the nature, intent, and general characteristics of run-ups, where they are anticipated to occur at the site and the estimated number of run-ups anticipated to occur annually and monthly.

As discussed above in Response to Comment WAMA-AL00001-8, the nature and level of operations anticipated to occur at the WAMA site are based on a reasonable assumption that activities presently occurring at the Qantas and US Airways maintenance areas would relocate to the WAMA site in light of the pending displacement of those facilities by upcoming development of certain LAX Master Plan projects. As such, the nature, timing, and aircraft types associated with existing Qantas and US Airways run-ups were assumed to occur at the WAMA site, which includes the fact that Qantas run-ups of their A380 and B-747 occur during daytime hours and not at night. There is no factual basis, and it would be speculative, to assume that simply because such existing activities relocate to the WAMA site, those existing run-ups would instead occur at night. Regarding the issue of run-ups conducted at 80 percent power setting versus 100 percent power, please see Response to Comment WAMA-AL00001-10 above.

The fact that Table 4.5-9 of the WAMA Draft EIR indicates that 15.6 of US Airways annual run-ups occur between 10:00 p.m. and 7:00 a.m. does not mean that there are run-ups occurring during the LAWA ground run-up curfew hours of 11:00 p.m. to 6:00 a.m. The hours of 10:00 p.m. to 7:00 a.m. is the time period defined as "night" in calculating CNEL values, whereby noise events occurring during those hours are assigned a 10 dB penalty. The CNEL time periods specified for daytime hours (7:00 a.m. to 7:00 p.m.), when no noise penalty

applies, and for evening hours (7:00 p.m. to 10:00 p.m.), when a noise penalty of 5 dB is assigned, are also shown in Table 4.5-9. This breakdown of when run-up activities occur during a 24-hour day provided the basis for calculating the CNEL values presented in Table 4.5-10 of the WAMA Draft EIR. The factual presentation of data in Table 4.5-9 does not "conceal" whether US Airways run-ups would occur during curfew hours, as alleged by the commenter, but rather presents detailed information for the reader to review in understanding the CNEL estimates. The run-up curfew hours of 11:00 p.m. to 6:00 a.m. are set forth in the LAX Rules and Regulations, which are applicable to all tenants at LAX including those that may occupy the WAMA site in the future.

Regarding low-power aircraft engine ground run-ups, low-power run-ups are essentially engines idling for a specified period. The engine noise level associated with operations at/near idling is much lower and stays local to the source, as compared to the noise level associated with an engine operating at or near full power, whereby noise levels extend much farther from the source and is the focus of potential noise impacts to off-site noise receptors. As documented in Section 4.5, *Noise,* of the WAMA Draft EIR, the noise impacts associated with high-power run-ups at the WAMA site were well below the threshold of significance (i.e., the maximum CNEL increase of 0.2 dB associated with project-related run-ups is substantially less than the 1.5 dB CNEL threshold of significance). Adding in low-power run-ups would have minimal, if any, contribution to the CNEL change expected from the currently anticipated WAMA operations since, on a noise energy basis, they are inconsequential and less than significant.

Notwithstanding the above, LAWA is willing to require tenants of the WAMA site to abide by the following requirement:

> ***WAMA-PDF-4 Aircraft Engine Ground Run-Ups:*** *Aircraft engine high-power ground run-ups of any duration and low-power run-ups of five minutes or more can only occur at the onsite blast fence; and, all run-ups (high-power and low-power of any duration) are prohibited anywhere on the WAMA site between 11:00 p.m. and 6:00 a.m.*

WAMA-AL00001-12

Comment: Remain Overnight/Remain All Day Spaces: The Project description indicates that the WAMA's RON/RAD spaces would serve as parking areas for aircraft awaiting maintenance "and/or placement at a terminal gate for departure." DEIR at 2-9. If the WAMA's RON/RAD spaces will' be used for non-maintenance aircraft parking- despite the fact that the Project Objectives indicate that aircraft maintenance is the sole purpose of the WAMA (DEIR at 2-2)-the DEIR must say so. Additional aircraft parking at the WAMA would free up gates that otherwise are occupied by parked aircraft (see DEIR at 2-13, indicating parking at CTA "can become crowded during overnight periods"), thereby creating the potential for increased airport operations. The DEIR, however, repeatedly dismisses the possibility of increased airport operations resulting from the Project. The DEIR must provide an enforceable commitment that RON/RAD spaces will be used only for maintenance, or else discuss the potential impacts of increased airport operations resulting from additional aircraft parking at the WAMA.

Response: The Project Objectives presented on page 2-2 in Chapter 2, *Project Description*, of the WAMA Draft EIR, do not indicate, or even suggest, that aircraft maintenance is the sole purpose of the Project. To the contrary, the third bullet in the Project Objectives states: "Provide aircraft maintenance hangars *and* [emphasis added] aircraft parking areas that are all sized to accommodate ADG VI aircraft and other aircraft in one location." Clearly that objective is describing two different functions, otherwise, if it were exclusive to aircraft maintenance, it would be stated along the lines of "Provide aircraft maintenance hangars and related maintenance parking areas…" Additionally, the fourth bullet states: "Provide an area for *RON/RAD* aircraft parking that can *also* support routine servicing and maintenance of aircraft." Here too, it is clear that the primary function being described is temporary aircraft parking (i.e.,

RON/RAD stands for "remain overnight/remain all day") and such aircraft parking *can also support* [emphasis added] routine servicing and maintenance as a secondary, complementary function. The WAMA Draft EIR is unequivocal about the purpose of the project being for both aircraft maintenance and for aircraft parking, and, moreover, the provision of RON/RAD aircraft parking spaces as part of the Project will not increase airport operations at LAX.

The indication on page 2-9 of the WAMA Draft EIR that portions of the WAMA site may serve as aircraft parking areas (i.e., RON/RAD) for aircraft awaiting placement at a terminal gate refers to the fact that there is sometimes many hours between flights for particular aircraft. It is more efficient and safer to park such aircraft, for extended durations, in apron areas away from the gate area, where they can undergo cabin cleaning and light maintenance/servicing and be out of the way of the activity areas around the gates. The Draft EIR's indication that parking at the Central Terminal Area can become crowded during overnight periods refers to late night hours when airlines' last flights of the day arrive and it is not until several hours later when flights start departing the next morning. That is not a situation where aircraft parked at the gates are preventing other flights from arriving or departing.

Please also see Response to Comment WAMA-AL00001-16 below for additional discussion regarding the fact that the provision of aircraft maintenance and aircraft parking at the WAMA site will not increase overall operations at LAX.

Notwithstanding the above, that LAWA and the WAMA Draft EIR have been very clear on the fact that the proposed use of the WAMA site includes aircraft maintenance and aircraft parking, LAWA is willing to require tenants of the WAMA site to abide by the following requirement:

> ***WAMA-PDF-5 Use of the WAMA Site:*** *Aircraft parking spaces at WAMA site cannot be used for passenger boarding or deplaning (i.e., cannot be used as remote gates), except during or as a result of emergency circumstances.*

WAMA-AL00001-13

Comment: Additionally, the DEIR suggests that RON/RAD spaces at the WAMA will provide ground power, precluding the need for auxiliary power units. DEIR at 2-15. The DEIR does not discuss the noise, air quality, or other impacts from APUs. Implying that APUs will not be used at the WAMA is not sufficient; the DEIR must clearly state that APU use will be prohibited (except for maintenance of APUs), or else include the noise, air quality, and other impacts of APU usage in the impacts analysis.

Response: As stated in Section 2.5.4 in Chapter 2, *Project Description*, of the WAMA Draft EIR, RON/RAD kits that include hook-ups for 400 Hz ground power, ground support equipment (GSE) charging stations, preconditioned air, and potable water are proposed at the aircraft parking positions at the west end of the apron, which will allow full aircraft functionality without running auxiliary power units (APUs) while the aircraft is parked at the apron. Given the option of having the aircraft connected to ground power, available whenever desired, versus the aircraft fuel consumption, equipment wear, and starting/stopping time of operating the on-board APU, it is likely that ground power through the RON/RAD station will be frequently used. Recognizing that the new aircraft parking positions provided by the Project would include ground power hook-ups whereas the vast majority of existing RON/RAD spaces at LAX do not have ground power, it is anticipated that implementation of the proposed Project would likely reduce APU usage at LAX and the associated noise, air quality, and other impacts as compared to existing conditions. Notwithstanding the likelihood that tenants will voluntarily take advantage of the availability of ground power, LAWA is willing to require tenants of the WAMA site to abide by the following requirement:

> ***WAMA-PDF-2 APU Usage While Aircraft is Parked:*** *Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are available, with the exceptions being: (1) if an APU is being serviced or checked*

relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.

WAMA-AL00001-14

Comment: Aircraft Movements to and from the WAMA: The DEIR states that 13 morning (a.m.) and 13 afternoon/evening (p.m.) aircraft movements to and from the WAMA are anticipated each day, for a total of 26 movements per day. DEIR at 2-13 through 14. While the DEIR briefly explains the basis for these assumptions, the information is unhelpful in determining the anticipated intensity of operations at the WAMA, given the remaining uncertainty about the approximate number of aircraft and ratio of larger to smaller aircraft at the WAMA at any given time of day. [footnote 2] Thus, there is no way to determine whether LAWA's assumptions about aircraft movement are "conservative" or even reasonably reflective of actual use of the WAMA. The DEIR must provide more concrete information about the anticipated ratio of larger to smaller aircraft using the WAMA, and the intensity of use of the WAMA itself on a single day, so that LAWA's aircraft movement assumptions provide a meaningful data point.

Footnote 2 The DEIR states that the WAMA could accommodate up to ten ADG VI aircraft, a larger number of smaller aircraft, or a mix of aircraft sizes. DEIR at 2-13. The DEIR does not clearly indicate how many smaller aircraft the WAMA could accommodate.

Response: The description of aircraft movements provided on pages 2-13 and 2-14 delineates the anticipated size of aircraft associated with the various movements in terms of wide-body aircraft and narrow-body aircraft. Wide-body aircraft, having twin-aisle seating configurations typically include aircraft such as the Boeing 767/Airbus A330 and larger, and narrow-body aircraft, having single-aisle seating configurations typically include Boeing 757/Airbus A321 and smaller. While reasonable assumptions relative to wide-body versus narrow-body aircraft have been incorporated into the operational assumptions of the proposed Project, it would be speculative to provide a more detailed breakdown of the specific airframes (i.e., Boeing 737, 747, 757, 767, 777, 787, Airbus 318, 319, 320, etc.), that would occupy the site on any given day. Between the more than a dozen different passenger airliner airframes for Boeing and Airbus alone that currently operate at LAX, there are hundreds of potential combinations. The number and general size of aircraft assumed to operate at WAMA on a typical day, as delineated in Chapter 2, *Project Description*, of the WAMA Draft EIR, are reasonable and appropriate for assessing the potential environmental impacts of the proposed Project.

It should be noted that the assumptions for the number, nature, and timing of aircraft presence at the WAMA site and aircraft movements to and from the WAMA site were developed by a team of aviation experts having substantial knowledge of, and experience with, the layout and operation of the airfield facilities at LAX. Those experts included: Mr. Cary Buchanan, Chief of Operations, LAX-Airport Operations, LAWA, with over 10 years of direct experience with airfield operations at LAX, Mr. Arnold Rosenberg, P.E., Senior Vice President, National Director of Aviation Program and Construction Management Services for Parsons Brinckerhoff, with over 24 years of professional experience in airport planning, engineering, and operations; Mr. Douglas Sachman, Associate Vice President at AECOM, serving as Lead Planner for LAWA Airports Development Group, with over 35 years of professional experience in airport planning, design, and operations; Mr. James Duke, P.E., Western Regional Airfield Service Group Leader for RS&H with over 19 years of experience in airport planning, engineering, and operations, currently serving as Airside Planning Manager for LAWA with three years of direct experience with LAX airfield operations; and Mr. Stephen Culberson, Director at Ricondo & Associates with over 22 years of professional experience in airport planning and environmental impact analysis of airport projects. Resumes associated with the

aviation experts listed above are included as Appendix B of this Final EIR.

WAMA-AL00001-15

Comment: Construction Staging: The DEIR states that the Project could displace existing construction staging at the Project site, but that any relocation "would not materially change the general pattern and type of activities that have occurred in these construction staging areas over the past several years." DEIR at 2-15. The DEIR neither indicates where existing construction staging may be relocated, nor contemplates the potential impact of relocated staging on the new locations. The Project could have significant secondary effects on El Segundo and other airport neighbors if existing construction staging at the Project site is relocated to staging areas immediately adjacent to neighbors' borders, including El Segundo's. The Project description should clearly state where relocation of construction staging may occur, and the DEIR should analyze the potential impacts of this relocation, since these impacts are a reasonably foreseeable aspect of the Project. See Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 396.

Response: As indicated in the text of the WAMA Draft EIR that precedes the excerpt quoted by the commenter, it is anticipated that the construction staging activities presently occurring at the WAMA site would be phased out prior to being affected by WAMA construction or would be relocated, if necessary, to other areas at LAX such as the existing staging areas located to the south of Westchester Parkway and west of Lincoln Boulevard. The subject areas, shown on the attached Figure 2-1, *Existing Construction Staging Areas that may be used to Accommodate Displacement, if any, of Staging Areas at West Area Maintenance Area Site,* are currently being used for construction staging activities associated with the Bradley West Project and other improvement projects underway at LAX and much of this area has been used for such activities on an ongoing basis since 2007. As is typical for most large construction programs, such as that at LAX, as each phase or element of the program is completed and the responsible contractors wrap-up, they vacate their assigned staging area and it is reassigned to another set of contractors, either for starting a new phase/element or for an existing project that, logistically, makes more sense to move existing contractors over to that area.

The WAMA site is currently used primarily by the contractor responsible for construction of Taxiway T and a portion of the site is anticipated to be used for materials processing by the contractor responsible for demolition/removal of the older existing concourses of the Tom Bradley International Terminal (TBIT), which are now replaced by the new Bradley West concourses. The Taxiway T project is anticipated to be finished by mid-2014. The activities associated with the TBIT concourses demolition will occur through 2014 and into early 2015; however, the staging area needs that involve the WAMA site may only require approximately 5-10 acres. Based on a combination of the timing of these projects, relative to the proposed start of WAMA construction to occur sometime in 2014, and the fact that the initial phase of the Project involves removal of the existing onsite stockpiles, which will free-up more of the WAMA site for temporary construction staging use, it is anticipated that most, if not all, of the existing construction staging activities occurring at the WAMA site will finish onsite and the need, if any, to relocate such activities to another staging area will be very limited and short-term in duration.

WAMA-AL00001-16

Comment: B. The Project Description Does Not Demonstrate That the WAMA Will Not Increase Overall Operations at LAX.

LAWA asserts that the Project will not increase overall operations at LAX. See, e.g., DEIR at 2-9. However, the Project description and the rest of the DEIR do not provide substantial evidence to support this assertion.

The DEIR states that all operations that will take place on the WAMA site-maintenance

hangars, engine ground run-ups, RON/RAD parking, and ancillary facilities-currently occur elsewhere at LAX and would simply be consolidated at the WAMA. See DEIR at 2-9; 4.5-26 through 31. However, as we explained in our comments on the NOP, the DEIR does not fully and clearly account for existing operations so that they can be compared to WAMA operations that will "replace" them. To demonstrate that the WAMA will not increase airport operations, the DEIR must indicate the location, frequency, and intensity of operations that the WAMA will replace-at the very least, with figures similar to Figure 4.5-1 of the DEIR, showing locations of current engine run-ups. Without a "one-to-one" comparison of anticipated WAMA operations and corresponding draw-downs elsewhere, the DEIR lacks substantial evidence that the WAMA will not increase overall airport operations. Clear documentation is critical to ensure that the maintenance facilities, RON/RAD parking, and other facilities slated for replacement are actually decommissioned and do not continue to be operated following WAMA completion.

Response: There is nothing about the currently proposed WAMA project that, in the opinion of experts having substantial experience in aviation planning and operations and also being very familiar with LAX, suggests implementation of the WAMA project would increase overall operations at LAX. That opinion is shared by an independent aviation expert that, upon review of the elements and characteristics of the proposed WAMA project, concluded that “the types of maintenance facilities contemplated for WAMA, like at other major hub, land constrained airports, will serve flights that the airlines are already operating, or planning to operate. The WAMA project alone will not generate any increase in aircraft operations at LAX and will not increase capacity for aircraft operations in the future.” Additional discussion regarding that expert opinion and the resume of that aviation expert are provided in Appendix C.

Figure 4.5-2, *Proposed Future Run-Up Locations,* in Section 4.5, *Noise,* of the WAMA Draft EIR shows where the future ground run-up areas would be with implementation of the proposed Project, which when compared to Figure 4.5-1, *Existing Run-Up Locations,* indicates that the existing ground run-up areas at Qantas and US Airways would be eliminated and the ground run-up area at WAMA would be added. That replacement of existing run-up activities through development of the WAMA project is reflected in the discussion in Section 4.5.6.2.1, which also references Table 4.5-9 that provides a breakdown of the individual ground run-up activities with project implementation and highlights in bold the changes from existing conditions. Those Project-related changes are further evident in comparing Table 4.5-9 to its existing conditions counterpart – Table 4.5-5, whereby it can be concluded that the replacement of existing aircraft maintenance and ground run-up activities would include those at Qantas and US Airways.

Regarding Project-related aircraft taxiing changes from existing conditions, the nature and basis of those assumptions are described in Section 4.5.6.2.2, and were also noted in Chapter 2, *Project Description*, on pages 2-13 and 2-14, of the WAMA Draft EIR.

West Aircraft Maintenance Area Project
Final EIR

Existing Construction Staging Areas that may be used to Accommodate Displacement, if any, of Staging Areas at West Area Maintenance Area Site

Figure
2-1

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WAMA-AL00001-17

Comment: Second, while the total Project area is 84 acres, the DEIR indicates that only 68 acres will be developed, leaving 16 acres undeveloped and unpaved. DEIR at 2-9. The DEIR does not explain why these "unpaved islands" (DEIR at 2-9) which are approximately the same area as the combined footprint of both ADG VI hangars included in the WAMA, and thus could likely be reconfigured to accommodate another hangar or blast fence-will not be developed as part of the proposed Project. Considering the development value to LAWA of each acre of airport land, it is difficult to imagine that LAWA plans to do nothing with these acres; indeed, the DEIR states that these 16 acres will be graded along with the 68 acres to be developed, suggesting preparation for future development. DEIR at 2-16, fn. 4. If LAWA has reasonably foreseeable plans for developing this land, those plans must be included in the DEIR's analysis. Delaying this analysis for another time, when it should instead be conducted as part of the WAMA, may amount to illegal project segmentation under CEQA. See Bozung, 13 Ca1.3d at 283-84 (CEQA mandates that "environmental considerations do not become submerged by chopping a large project into many little ones").

Response: As indicated in the footnotes on pages 1-1 (of Chapter 1, *Introduction and Executive Summary*) and 2-1 (of Chapter 2, *Project Description*), of the WAMA Draft EIR, the 16 acres that would be undeveloped and unpaved consist of the unpaved islands between taxiways (i.e., between the westerly extensions of Taxiways B and C) and other unpaved areas. The other unpaved areas include narrow strip of land along the eastern edge of the WAMA site parallel to Taxiway AA and the southern and southwestern portions of the WAMA site. Given the fragmented and dispersed nature of these unpaved areas and the safety area restrictions that extend into the areas (i.e., Federal Aviation Administration [FAA] regulations pertaining to Taxiway Safety Area (TSA) and Object Free Area [OFA] along taxiways/taxilanes and the Runway Protection Zone [RPZ] for Runway 7L/25R, which encompasses the southeast portion of the WAMA site, the development of another hangar or blast fence, as suggested by the commenter, or other development within such areas is not feasible or reasonably foreseeable. Although the sizes, configurations, and locations of these various unpaved areas are not suitable for development, they are included within the overall grading footprint of the project site to facilitate proper drainage of the site and to avoid notable elevation differences between paved and unpaved areas, especially near areas where aircraft are moving.

WAMA-AL00001-18

Comment: Third, the DEIR does not explain why the WAMA-a major, $175 million infrastructure project, covering a significant portion of the airport's southwest quadrant- is justified by the added capacity of a mere 60 annual, or 5 monthly, engine run-ups. See DEIR at 2-13. If the DEIR is to be believed, the WAMA would accommodate less than 2.5% of the airport's current total run-ups (2,496 per year). See DEIR Table 4.5-5. It is difficult to understand why a project that would add so little run-up capacity is so urgently needed, unless LAWA plans to do more with it than the DEIR indicates. We strongly suspect that the actual maintenance, RON/RAD, and other activities at the WAMA will be much greater than the DEIR acknowledges and evaluates. This is a serious CEQA problem.

Response: The purpose of the Project is not to add aircraft engine ground run-up capacity, as suggested by the commenter. The objectives of WAMA are clearly stated in Chapter 2, *Project Description*, Section 2.4, *Project Objectives,* of the WAMA Draft EIR and include to: consolidate, relocate, and modernize certain existing aircraft maintenance facilities at LAX; provide for more efficient and effective maintenance of existing aircraft at the airport, including ADG VI aircraft; provide aircraft maintenance hangars and aircraft parking areas that are all sized to accommodate ADG VI aircraft and other aircraft in one location; provide an area for RON/RAD aircraft parking that can also support routine servicing and maintenance of aircraft; and support consistency with the

LAX Master Plan by providing an aircraft maintenance area in the southwest portion of the airport. LAWA has proposed a facility – the WAMA facility - that meets those objectives and the preliminary cost estimates of constructing such a facility is approximately $175 million. It should be noted that the costs of infrastructure improvement projects at LAX, even for what may appear to be relatively simple projects, are not minor on any scale. For perspective and comparison, the cost of two recent taxiway projects, Taxiways R and S, both essentially being long flat straight areas of concrete pavement were $138 million and $165 million, respectively.

WAMA-AL00001-19

Comment: II. The Project Is Inconsistent With the LAX Master Plan.

The 2004 LAX Master Plan guides and provides a comprehensive look at all development at the airport. LAWA, neighboring jurisdictions like El Segundo, and many other stakeholders spent years developing the Plan, which, according to the settlement resolving litigation over the Plan, is a "general plan for the airport, setting out goals, policies, objectives, and programs for the long-term development and use of the airport." The Master Plan itself states that it contains "working guidelines to be consulted by LAWA as it formulates and processes future site-specific projects." Master Plan, Preface.

As we explained in our comments on the NOP, the Project is inconsistent with the Master Plan. The Plan sets aside the Project site for use as an employee parking facility (DEIR at 5-23) and locates the new western maintenance facilities on the other side of Taxiway AA, immediately west of the existing United-Continental Hangar (DEIR at 5-9). The Project, however, deviates from the Plan by "exchanging" the proposed uses for these sites and making other changes to the Plan, including expanding the footprint of the proposed development west of Taxiway AA. DEIR at 4.6-10. These inconsistencies are a potentially significant impact under the DEIR's own standard: the proposed Project "conflict[s] with an[] [sic] applicable land use plan." DEIR at 4.6-4. The DEIR brushes the conflict aside by claiming that the Project "would not materially change the conceptual framework for development in the Project area ... [and] would be consistent with the LAX Master Plan Program by providing an aircraft maintenance area in the southwest portion of the airport." DEIR at 4.6-10. This explanation is insufficient-the Project is not what the Master Plan calls for and therefore conflicts with the Plan.

Either the Project must be changed to comply with the Master Plan, or the Plan must be amended to allow the use proposed by the Project. LAWA cannot legally depart from the approved Master Plan in a substantial way without formally amending the Plan and conducting the necessary CEQA analysis. Amending the Plan would be more than a paper exercise because it would help ensure that LAWA follows through with its proposal to tum the area east of Taxiway AA into employee parking, rather than additional maintenance or other unauthorized facilities. The DEIR must describe LAWA's Plan amendment process or similar measure for ensuring that any future development on or near the site of the United-Continental Hangar, American Airlines employee parking, and former Continental training building is for employee parking only.

El Segundo has consistently objected to LAWA's departures from the Master Plan. LAWA's apparent disregard for the Plan is thus deeply troubling. We urge LAWA to re-commit to following the Master Plan as a "general plan for the airport." If changed circumstances suggest deviations from the Plan, LAWA should re-initiate the planning process so that stakeholders can understand and help shape the overall vision for the airport. Making changes in the piecemeal, low-profile manner embodied by the Project, with its incomplete description and inadequate impacts analysis, leaves the public in the dark and causes serious problems in the environmental review process.

Response: The currently proposed Project does not conflict with, or represent a substantial departure from, the LAX Master Plan, as described above in Response to Comment WAMA-AL00001-4. Implementation of the proposed WAMA project does not require modifications or amendments to any state or local land use regulatory plans or documents applicable to LAX, as discussed in

Section 4.6 of the WAMA Draft EIR. Implementation of the WAMA project will, however, require an update to the existing Airport Layout Plan (ALP) for LAX, as indicated in Section 2.9.1, *Federal Actions,* of the WAMA Draft EIR and also noted below in Response to Comment WAMA-AL00001-40. An ALP is a federal regulatory document under the jurisdiction of, and subject to approval by, the Federal Aviation Administration (FAA).

WAMA-AL00001-20

Comment: III. The DEIR Fails to Account for the Project's Noise Impacts.

The DEIR entirely disregards El Segundo's noise ordinance as a standard of significance in analyzing the Project's noise impacts. See City of El Segundo Municipal Code, Title 7, Chapter 2 ("Noise and Vibration"), attached as Exh. 4. **[footnote 3]** El Segundo's standard prohibits the creation of noise levels greater than 5 dB higher than ambient noise levels on residential properties, as well as "loud, unusual, or unnecessary" noise that "disturbs the peace, quiet, and comfort of any neighborhood, or which causes discomfort to any reasonable person of normal sensitivity in the area." Noise Ordinance §§ 7-2-4 through 7-2-6. These are reasonable significance standards for evaluating the Project, which, according to the DEIR, may produce single-event noise levels exceeding 80 dBA at some locations in El Segundo. DEIR Table 4.5-11. Rather than evaluate the impact of these noise levels using El Segundo's standards, however, the DEIR merely states that single-event noise levels "may or may not be perceptible based on the other noise source levels at the community sites." DEIR at 4.5-25. The DEIR is silent about the noise El Segundo residents will actually hear from daily WAMA operations, including noise from large aircraft engine run-ups.

By ignoring El Segundo's noise standard and existing ambient noise levels, and relying instead on the FAA's generic "average annual day" standard to assess the Project's noise impacts, the DEIR impermissibly disregards the sensitivity of the community most affected by the Project's noise impacts. See Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs. (2001) 91 Cal.App.4th 1344, 1380-81 (recognizing "significance of an activity may vary with the setting" as basis for CEQA's site-sensitive threshold of significance for noise). Failure to address El Segundo's standard may result in significant underestimation of the Project's audible noise impacts.

Footnote 3 See also City of El Segundo General Plan, Noise Element, Goal N1 (stating the City's objective to ensure that City residents are not exposed to stationary or mobile noise levels in excess of El Segundo's Noise Ordinance standards), attached as Exh. 5.

Response: The aircraft-related noise impact threshold of significance that was selected by LAWA, as CEQA Lead Agency for the proposed Project, and used in the WAMA Draft EIR is reasonable and appropriate for evaluating potential noise impacts to communities and municipal jurisdictions outside of the airport boundary. It is consistent with significance threshold set forth in Section I.4, *Airport Noise,* of the City of Los Angeles CEQA Thresholds Guide (2006), which includes a description of the rationale behind determination of specific thresholds of significance to be used in evaluating airport noise impacts. The aircraft-related noise impact threshold of significance selected by LAWA for the WAMA Draft EIR noise analysis is also consistent with criteria set forth by the FAA in evaluating the significance of community noise impacts for airport projects throughout the country; specifically, as reflected in FAA Order 1050.1E, FAA Order 5050, 4B, and the FAA Environmental Desk Reference for Airport Actions.

The noise impact criteria set forth in the City of El Segundo Noise Ordinance are not intended or designed to address aircraft noise, let alone deal with any noise source emanating outside of the City boundary, and, in fact, specifically excludes aircraft noise. The selective excerpts of the City of El Segundo Noise Ordinance presented in the comment do not include key operative provisions of the Noise Ordinance, beginning with the very first sentence of the Noise Ordinance, which reads: "It is hereby declared to be the policy of the City to prohibit unnecessary, excessive, and annoying noises and vibrations from all sources *subject to its*

police power [emphasis added]." Noise Ordinance § 7-2-1) The noise standard that is cited in the comment is prefaced in the Noise Ordinance by the following statement: "No person shall, at any location *within the City* [emphasis added], create any noise, nor shall any person allow the creation of any noise within the person's control on public or private property (hereinafter "noise source"), which causes the noise level when measured on any other property (hereinafter "receptor property"), to exceed the applicable noise standard, except as set forth in subsection C1 of this section." (Noise Ordinance § 7-2-4). The selective excerpts in the comment fail to include or acknowledge the exemption provisions of the Noise Ordinance, in particular Noise Ordinance § 7-2-10F., which states the following exemption: "Activities Preempted By State Or Federal Law: Any activity to the extent regulation thereof has been preempted by State or Federal law, *including, but not limited to, aircraft* [emphasis added], motor vehicles, railroads and other interstate carriers." Clearly the City of El Segundo Noise Ordinance that the commenter is requesting be applied to the LAX WAMA noise analysis is not designed, intended, or legally allowed to regulate aircraft noise activities at LAX. The aircraft-related noise impact threshold of significance that was selected by LAWA, as CEQA Lead Agency for the proposed Project, and used in the WAMA Draft EIR is reasonable and appropriate for evaluating potential noise impacts to communities and municipal jurisdictions outside of the airport boundary.

WAMA-AL00001-21

Comment: Moreover, despite El Segundo's recommendations during the WAMA planning process that LAWA carefully study the Project's low-frequency noise impacts, the DEIR's analysis ignores the secondary impacts of low-frequency airborne noise caused by engine run-ups. See Fidell Memo at 1. These secondary impacts manifest as rattling in the interiors of homes and have been shown to cause significant annoyance up to one mile away-farther than the Project's distance from many sensitive receptors in El Segundo. See Fidell Memo at 3-4. By relying on A-weighted noise metrics in its evaluation of the Project's noise impacts, the DEIR does not account for the unique physics or full spectrum of ground-level, airborne engine run-up noise, whose low- frequency content is more effectively evaluated under a C-weighted analysis. Fidell Memo at 2. The DEIR does not contain a C-weighted noise analysis, even though LAWA is capable of conducting one. See Community Noise Roundtable, Recap of Meeting of September 20, 2010, attached as Exh. 6. Consequently, "the magnitude of low frequency sound levels that operations at the WAMA would produce in residences in El Segundo, as well as estimates of the prevalence of annoyance associated with such noise events, are conspicuously absent from the DEIR." Fidell Memo at 2.

Response: The aircraft noise analysis for the WAMA Draft EIR was appropriately prepared consistent with the types of noise analysis LAWA, as the Lead Agency, has prepared for LAX EIR's where aircraft noise was a potential impact. The idea of evaluating low-frequency noise and related vibration/rattling impacts associated with aircraft operations is a research concept, which, as reflected by the dates of the studies cited by Dr. Fidell being more than a decade ago, that has not advanced to the point of being acceptable or appropriate for application in an EIR analysis, particularly given that there are no recognized or accepted threshold of significance for the type of annoyance (i.e., rattling in the interiors of homes). In an April 2002 publication by the Federal Interagency Committee on Aviation Noise (FICAN), the results of a FICAN review of the findings of the Minneapolis-St. Paul International Airport (MSP) low-frequency noise LFN expert panel were presented.[4] Dr. Fidell was one of the three members on the MSP LFN Expert Panel. The MSP LFN Expert Panel findings that were reviewed by FICAN reflect many of the same points made by Dr. Fidell in the comments submitted by the City of El Segundo on the WAMA Notice of Preparation and on the WAMA Draft EIR. The FICAN responses to the MSP LFN Expert Panel findings included, but were not limited to, the following summary:

[4] Federal Interagency Committee on Aviation Noise, *FICAN on the Findings of the Minneapolis-St. Paul International Airport (MSP) Low-Frequency Noise (LFN) Expert Panel,* April 2002.

1. Effect of Low-Frequency Aircraft Noise: low-frequency noise from civil aircraft will not pose a public health risk, risk of structural damage, or an increase in indoor speech interference.
2. Descriptors of Low-Frequency Aircraft Noise and Low-Frequency Noise Dose: The FICAN was not comfortable with the MSP LFN Expert Panel's proposed measure of low-frequency noise level dose (i.e., the ability to correlate and/or predict aircraft-noise induced rattle as specifically related to low-frequency noise).
3. Relationship between Low-Frequency Noise and Annoyance: A social survey was conducted at MSP to evaluate the relationship between low-frequency sound level and the prevalence of high annoyance due to rattle; however, the FICAN had strong misgivings and questions about the survey results.
4. Acceptability Criteria for Low-Frequency Noise: The FICAN review of the MSP LFN Expert Panel findings indicated "It is premature to consider adopting LFSL [low-frequency sound level] and the impact criteria without further research. In addition to the substantive problems with some of the findings and methods as described in the previous sections of this paper, further research is necessary to address the complex interaction between (1) building construction, (2) the contribution of loudness to annoyance, and (3) the contribution of rattle to annoyance."

In light of the above, including the uncertainties and lack of evidence regarding the relationship between aircraft-related low-frequency noise and rattling, and people's perception of such rattling, in addition to the absence of any recognized or accepted standards related thereto, there is no reasonable and appropriate basis to assess whether there would be significant rattling annoyance impacts from the aircraft engine run-ups associated with the proposed WAMA project.

Notwithstanding the above, LAWA has completed, for informational purposes, additional technical analysis of noise levels associated with aircraft engine ground run-ups with the inclusion of C-weighted noise.

For the C-weighted noise analysis, the same modeling scenarios used for the WAMA Draft EIR analysis (i.e., Existing aircraft engine run-up conditions and Future with WAMA Project aircraft engine run-up conditions) were used, and a subset of the noise sensitive receptor locations used in the Draft EIR was selected; specifically, those noise-sensitive receptors located in El Segundo.

Table 2-2, below, shows the C-weighted CNEL results and the differences or change in C-weighted CNEL from the existing conditions scenario. As shown, all the C-weighted CNEL differences are between -0.1 and 0.2 dB.

As was also done for the WAMA Draft EIR noise analysis, the additional analysis of C-weighted noise included estimates of single event noise levels, in terms of maximum noise level (L_{max}) associated with run-ups anticipated to occur at the WAMA site. Table 2-3 presents the results of that single event maximum C-weighted noise analysis.

Similar to the results of the A-weighted single event maximum analysis completed for the WAMA Draft EIR, as described on page 4.5-25 of the Draft EIR, the estimated C-weighted L_{max} values presented in Table 2-3 indicate that the single-event noise levels for those run-ups to be relocated to the proposed Project may increase or decrease at the various locations based on the changes in distance or changes in shielding at the proposed Project compared to the existing run-up location. The increases or decreases may or may not be perceptible based on the other noise source levels at the community sites. The sound levels listed in the subject tables are for a single aircraft conducting a run-up at LAX. The values are specific to the project-related run-ups and do not include noise from other aircraft events such as departures

Table 2-2

Comparison of Aircraft High-Power Engine Run-up C-weighted CNELs for Existing Conditions and Proposed Future Conditions with Project by Location

ID #	Location/Address	C-weighted CNEL (dB)		
		Existing Conditions	Future with Project	Difference Project - Existing
1	El Segundo High School 640 Main St.	68.2	68.3	0.1
2	Center St. Elementary School 700 Center St.	70.9	70.9	0.0
3	Richmond Street Elementary 615 Richmond St.	67.1	67.2	0.1
4	Imperial School 540 E. Imperial Ave.	74.7	74.7	0.0
5	St. Anthony's Catholic School 233 Lomita St.	60.8	61.0	0.2
6	El Segundo Middle School 332 Center St.	66.7	66.6	-0.1
7	El Segundo Pre-School 301 West Grand Ave.	63.3	63.4	0.1
8	Hilltop Christian School 777 E. Grand Ave.	65.2	65.2	0.0
15	El Segundo Public Library 111 W. Mariposa Ave.	67.2	67.3	0.1
16	Pacific Baptist Church 859 Main St.	71.7	71.8	0.1
17	United Methodist Church 54 Main St.	67.2	67.3	0.1
18	First Baptist Church 591 E. Palm Ave.	70.2	70.2	0.0
19	St. John's Lutheran Church 1611 E. Sycamore Ave.	74.4	74.3	-0.1
20	Church of Christ of Latter Day Saints 1215 E. Mariposa Ave.	69.9	69.9	0.0
21	St. Anthony's Catholic Church 720 E. Grand Ave.	63.4	63.5	0.1
22	St. Andrew Catholic Church 538 Concord St.	66.6	66.7	0.1
23	St. Michaels Episcopal Church 361 Richmond St.	64.9	65	0.1
24	El Segundo Christian Church Franklin Ave. and Concord St.	63.2	63.2	0.0
25	Kingdom Hall of Jehovah's Witnesses 608 E. Grand Ave.	64.1	64.2	0.1
P-ESG1	Roof of building at 770 West Imperial Ave.	75.8	75.9	0.1
P-ESG2	Greenbelt across from 216 East Imperial Ave.	74.6	74.6	0.0

Source: HMMH, SoundPLAN, 2014

Table 2-3

C-weighted L_{max} (dB) for High-Power Engine Run-ups by Aircraft and Location (i.e., Location of run-up at WAMA site compared to run-up of that aircraft under Existing Conditions)

ID #	A320			A380			B747		
	Existing Conditions	Future with WAMA	Change	Existing Conditions	Future with WAMA	Change	Existing Conditions	Future with WAMA	Change
	L_{max}	L_{max}	Change in L_{max}	L_{max}	L_{max}	Change in L_{max}	L_{max}	L_{max}	Change in L_{max}
1	71.9	76.5	4.6	77.1	79.5	2.4	85.2	87.1	1.9
2	75.6	77.0	1.4	80.6	80.1	-0.5	88.0	87.5	-0.5
3	70.5	75.4	4.9	75.4	78.1	2.7	83.4	85.8	2.4
4	79.6	81.3	1.7	84.0	83.5	-0.5	91.9	91.2	-0.7
5	65.0	71.2	6.2	70.2	74.0	3.8	77.8	81.2	3.4
6	71.0	71.6	0.6	75.8	74.3	-1.5	83.3	81.7	-1.6
7	66.6	70.6	4.0	70.3	72.5	2.2	78.4	80.4	2.0
8	68.2	71.8	3.6	74.8	74.6	-0.2	82.5	81.9	-0.6
15	70.7	75.5	4.8	75.6	78.3	2.7	83.7	86.0	2.3
16	74.7	80.4	5.7	81.1	83.3	2.2	89.4	90.9	1.5
17	70.9	75.5	4.6	76.0	78.4	2.4	83.9	86.0	2.1
18	74.3	75.1	0.8	79.8	78.4	-1.4	87.5	85.7	-1.8
19	80.5	78.4	-2.1	82.9	81.5	-1.4	90.3	88.9	-1.4
20	74.5	76.1	1.6	79.7	79.3	-0.4	87.0	86.7	-0.3
21	67.7	71.4	3.7	71.8	73.8	2.0	79.8	81.4	1.6
22	70.2	74.6	4.4	74.5	77.2	2.7	82.5	85.0	2.5
23	68.5	72.0	3.5	72.6	74.5	1.9	80.5	82.3	1.8
24	67.3	68.0	0.7	70.9	70.6	-0.3	78.8	78.4	-0.4
25	66.9	73.0	6.1	73.6	76.1	2.5	81.4	83.4	2.0
P-ESG1	72.9	80.8	7.9	79.0	82.7	3.7	87.8	91.0	3.2
P-ESG2	77.2	81.0	3.8	84.7	83.7	-1.0	92.7	91.4	-1.3

Source: HMMH, SoundPLAN, 2014

and arrivals, nor do they account for noise generated by traffic and other community noise sources; hence, they should not be considered representative of what a receptor would experience over the course of a typical day (i.e., the run-up noise would be partially masked by, or less noticeable with the context of, other typical noise events occurring throughout the day) – they are provided for general informational purposes only.

WAMA-AL00001-22

Comment: In addition to these flaws in the DEIR's noise analysis and the inadequate quantification of engine run-ups discussed in Part I of this letter, El Segundo has the following concerns relating to the Project's noise impacts:

Automated Run-Up Noise Monitoring: The DEIR should include an enforceable mitigation measure requiring rigorous monitoring of the Project's low frequency noise impacts by including automated run-up noise monitoring on site and regular public reporting. Currently, LAWA does not report any explicit monitoring of run-ups occurring after curfew hours except "enforcement actions," as indicated in the airport's Quarterly Noise Reports. Reporting "enforcement actions" tells the public nothing about the actual occurrence of engine run-ups during curfew hours. Put another way, LAWA does not currently provide the public with data regarding the frequency or occurrence of run-ups during curfew hours. Rather, LAWA only reports that it has not taken enforcement action in response to such run-ups. That could mean no or few such run-ups occur or that LAWA has elected not to enforce the curfew. An automated system at the WAMA should use readily available technology to identify and report run-ups by distinguishing run-up noise from other low-frequency aircraft noise. Ground-level, airborne engine noise has a unique temporal envelope, spectral balance, and event onset and offset times, and a longer duration than other aircraft engine noise. Fidell Memo at 6. Automated monitoring would enable the airport and the public to "obtain the technical information needed to assess whether the [Project] will merely inconvenience the Airport's nearby residents or damn them to a somnabulate-like existence." Berkeley Keep Jets, 91 Cal.App.4th at 1382.

Response: There are no significant environmental impacts associated with aircraft engine run-ups at the WAMA site that warrant mitigation suggested by the commenter. Notwithstanding, LAWA is willing to include within the final design of the WAMA development plans the following Project Design Feature:

> ***WAMA-PDF-6 Automated Run-Up Monitoring System:*** *An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).*

WAMA-AL00001-23

Comment: Location of Ground Run-Up Enclosures: El Segundo is troubled by the removal, after the publication of the NOP, of the GRE from LAWA's plans for the Project. The Master Plan calls for the development of two GREs. Master Plan Addendum at 2-95. Moreover, the 2010 Stipulated Variance approved by LAWA, El Segundo, and others provides that LAWA will design two GREs by 2015. See also In the Matter of Noise Variance Application for City of Los Angeles et al., Dept. of Transp. Case No. L2010041216 (ordering LAWA to design two GREs). With this deadline rapidly approaching, LAWA must commit to the design and placement of the two GREs. El Segundo recommends that LAWA's "airport-wide GRE siting study" (DEIR at 5-53) commence immediately. The study should conclude before the construction of the

WAMA is complete and include serious consideration of the Delta maintenance area and Western Remote Gates as potential GRE sites. As we noted in our comments on the NOP, the GRE planning process should also seek to maximize the degree to which the final GRE structures attenuate/absorb sound through customization of components to meet specifications developed in consultation with El Segundo's noise consultant. The study process should also include evaluation of appropriate GRE use rules/mandates.

Response: Comment is noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. The LAX GRE Siting Study is separate from, and independent of, the WAMA project. LAWA has developed the scope of work for the LAX GRE Siting Study and retained a consultant team to complete the study. The subject study is expected to include appropriate consideration of a number of potential GRE sites including, but not limited to, the Delta maintenance area and the West Remote Gates area. LAWA will work with stakeholders on development of the airport-wide GRE siting study.

WAMA-AL00001-24

Comment: **IV. LAWA Must Observe El Segundo's Restrictions on Truck Haul Routes.**

The Project site currently contains approximately 295,000 cubic yards of accumulated "stockpiled material." DEIR at 2-17. This material will need to be exported off-site for re-use or disposal. *Id*. Haul trucks, in addition to construction trucks for the Project, will enter and exit the Project site approximately 228 times daily during the peak construction month. DEIR at 4.7-20.

As we noted in our comments on the NOP, El Segundo requests that truck trips for the Project avoid the City of El Segundo. If any truck travel through the City occurs, LAWA must ensure that traffic observes the truck haul routes described in El Segundo's General Plan Circulation Element. See Circulation Element Exhibit C-13, attached as Exh. 7; see also General Plan Circulation Element Excerpts (Goals, Policies, and Objectives), attached as Exh. 8.

Additionally, the DEIR does not evaluate the impact of heavy truck traffic on street pavement conditions. Imperial Highway is already in very poor condition and could be further impacted by Project-related haul truck traffic. The City requests that LAWA include pavement resurfacing on Imperial Highway as a mitigation measure.

Response: As described on page 4.7-36 in Section 4.7, *Construction Surface Transportation*, of the WAMA Draft EIR, in accordance with LAX Master Plan Commitment ST-22, truck deliveries will be on designated routes only (freeways and non-residential streets) and every effort will be made to avoid residential frontages. Furthermore, as shown on Figure 4.7-3 (page 4.7-23), the proposed truck route using local streets in the vicinity of the Airport would be limited to Imperial Highway, Pershing Drive, and World Way West. This route complies with El Segundo's General Plan Circulation Element, Exhibit C-13, which illustrates Imperial Highway as a recommended truck route.

The City of Los Angeles' Bureau of Street Services resurfaced the eastbound lanes (southern roadway) of Imperial Highway from Pershing Drive to West Imperial Terminal Driveway in Spring 2012. The current pavement condition of this segment of Imperial Highway is excellent, and not "in very poor condition" as the commenter stated. Per the City's Bureau of Street Services Resurfacing and Reconstruction Division, the resurfacing of the westbound lanes (northern roadway) of Imperial Highway between California Street and Pershing Drive is in the future resurfacing

program, pending funding availability and utility clearances.[5]

Additionally, it should be noted that, based on the nature of the proposed Project and the proposed construction approach, it is anticipated that heavy truck traffic associated with the Project would be limited and short-term in duration. While the initial stage of project construction would include truck traffic associated with the export of excess soil from the Project site that activity will last only a few weeks within the five-year development program. Truck trips associated with construction of the apron area will be reduced by virtue of having an on-site construction concrete batch plant. Upon completion of construction, long-term operation of the WAMA site would involve very few heavy truck trips associated with periodic, infrequent transport of heavy materials such as replacement aircraft engines and other such aircraft components. In light of the above, there is no basis to believe that project implementation would result in notable amounts of heavy truck trips on a frequent/regular basis that would result in damage to Imperial Highway.

Notwithstanding the above, an incremental amount of damage, if any, could occur and LAWA is willing to include as a Project Design Feature of the proposed Project the following:

> ***WAMA-PDF-7 Resurfacing a Portion of Imperial Highway:*** *LAWA will work with City of Los Angeles Bureau of Street Services (LABSS) to contribute its reasonable allocable share subject to FAA approval toward resurfacing of Imperial within the City of Los Angeles's jurisdiction; if the LABSS undertakes this resurfacing project, LAWA will also work with LABSS and the Council District 11 office to schedule resurfacing work. LAWA commits to meetings with Caltrans (alongside the City of El Segundo) to discuss improvements to areas under Caltrans control but cannot make any guarantees as to Caltrans' actions.*

WAMA-AL00001-25

Comment: **V. The DEIR's Consideration of Alternate Sites for the Project is Inadequate.**

An EIR must describe a range of alternatives to the proposed project, and its location, that would feasibly attain the project's basic objectives while avoiding or substantially lessening the project's significant impacts. Pub. Res Code§ 21100(b)(4); CEQA Guidelines§ 15126.6(a). As the California Supreme Court explained in Laurel Heights, "[w]ithout meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process." Laurel Heights, 47 Cal.3d at 404.

The DEIR fails to justify its rejection of the "West Remote Pads/Gates Site" alternative. In the City's letter commenting on the WAMA NOP, El Segundo recommended that at least some WAMA components, such as a hangar, some RON/RAD spots, and/or a GRE, be built in the Western Remote Gates area. This recommendation was based on the reasonable assumption that LAWA will ensure no net increase in airport operations by decommissioning part, if not all, of the Western Remote Gates. The DEIR, however, ignores the likelihood of decommissioning these gates and rejects the West Remote Pads/Gates Site alternative on the ground that "the site is highly utilized for passenger gate facilities and for aircraft parking (i.e., RON/RAD), including special- purpose use ... and would not be available for use during the time frame required for development of the proposed Project." DEIR at 5-3. Given that both the WAMA and the Midfield Satellite Concourse Phase I ("MSC

[5] Email to LAWA (Patrick Tomcheck) from Bureau of Street Services Resurfacing and Reconstruction Division (Enrique Palmas) on January 9, 2014

North") projects are slated for completion in 2019 (DEIR at 3-6), and the MSC North project will likely require the decommissioning of some Western Remote gates, the DEIR's statement that the Western Remote Gates would not be available as an alternative location during the necessary time frame rings hollow. The DEIR must explain how LAWA will continue operating all of the Western Remote Gates, despite the addition of new gates as part of airport expansion projects elsewhere, such that none of the proposed WAMA operations could be sited at the Western Remote Gates. See Save Round Valley Alliance v. County of Inyo (2007) 157 Cal.App.4th 1437, 1465 (rejecting EIR that included only "barest of facts" regarding alternatives and "vague and unsupported" claims about their merits).

Response: As described in Section 5.4.1, *West Remote Pads/Gates Site*, of the WAMA Draft EIR, the west remote pads/gates area serves a number of functions and is highly utilized, including the provision of passenger gates, RON/RAD aircraft parking, which at times gets so crowded that aircraft have to be double- and triple-parked, and for accommodating “super-jumbo” aircraft and government aircraft such as Air Force One. As discussed above in Response to Comment WAMA-AL00001-8, the objectives of the proposed Project include to: consolidate, relocate, and modernize certain existing aircraft maintenance facilities at LAX; provide for more efficient and effective maintenance of existing aircraft at the airport; provide aircraft maintenance hangars and aircraft parking positions for a variety of aircraft sizes at one location; provide RON/RAD aircraft parking that can also support routine servicing and maintenance of aircraft; and support consistency with the LAX Master Plan by providing an aircraft maintenance area in the southwest portion of the airport. Development of the WAMA site will provide the opportunity to accommodate the aircraft maintenance facilities and associated RON/RAD parking that will be displaced by various Master Plan improvements including, but not limited to the Midfield Satellite Concourse (MSC). To develop aircraft maintenance facilities and RON/RAD parking within an area that is already highly utilized for other needed functions in order to accommodate existing uses displaced by new facilities such as the MSC and other Master Plan improvements or ongoing maintenance or upgrade projects throughout LAX would make no sense given that you would have to now somehow accommodate the existing uses displaced from the west remote pads/gates area. The idea that some uses at the west remote pads/gates area could relocate to the MSC when completed in 2019 overlooks the problem of what to do in the meantime with the uses displaced from areas undergoing Master Plan improvements as well as displaced from the west remote pads/gates area during construction of the maintenance facilities otherwise developed at the WAMA site. While completion of the last increment of the proposed WAMA facilities, that being construction of the additional (second) maintenance hangar would not occur until late-2018 or early-2019, the vast majority of the WAMA improvements including the first hangar and the apron area would be completed by mid- to late-2015, as described in Section 2.7, *Construction Schedule,* and also reflected in Section 5.4.1 of the WAMA Draft EIR.

WAMA-AL00001-26

Comment: The DEIR's analysis of the "Alternate Site" alternative is also inadequate. The discussion of this alternative does not mention that its location, the Delta maintenance area, is the Master Plan's proposed location for one of the two GREs. Master Plan Addendum at 2-95. The DEIR fails to state that this alternative would enable LAWA to retain the GRE component of the original WAMA design and fulfill part of its obligation to design two GREs by 2015. Moreover, LAWA's disfavor of the Alternate Site alternative's inconsistency with components of the Master Plan, such as the Plan's retention of "approximately 176,000 square feet of existing cargo space" (DEIR at 5-53), is incongruent with LAWA's willingness to depart substantially from other Plan elements for purposes of developing the Project. The Master Plan is a

comprehensive blueprint for development at LAX, not an assortment of projects from which LAWA may pick and choose.

Response: The fact that the Alternative Site is the location of a future GRE contemplated in the LAX Master Plan is reflected in the first three sentences at the top of page 5-53 of Chapter 5, *Alternatives*, of the WAMA Draft EIR, which surround the Draft EIR excerpt contained in the comment; specifically, "Under the LAX Master Plan, the Alternate Site Alternative is designated for 'Existing Maintenance Facility', 'Proposed Ancillary Facility', 'Proposed Cargo Building' as well as 'Taxiways/Aircraft Aprons,' and 'Airport Landside/Parking'. The Proposed Ancillary Facility is identified as a potential area for a GRE. Under the LAX Master Plan, approximately 176,000 square feet of existing cargo space and 172,000 acres of aircraft maintenance hangars would be retained and 90,000 square foot future GRE would be developed." Additionally, the subject discussion in the WAMA Draft EIR clearly states that implementation of this alternative "would still allow future development of a GRE onsite." Please also see Response to Comment WAMA-AL00001-4 regarding the compatibility of the WAMA project with the LAX Master Plan.

WAMA-AL00001-27

Comment: Finally, the DEIR's disfavor of the Alternate Site, Reduced Project, and West Remote Pads/Gates Site alternatives for their purported inability to meet the WAMA's maintenance objectives (see, e.g., DEIR at 5-44 and 5-54) is inconsistent with the Master Plan's clear indication of a planned net reduction in overall maintenance activities at LAX. See Master Plan Addendum at 2-95 (anticipating net reduction of approximately 250,000 square feet of maintenance facilities). This reduction would require relocating some maintenance activities currently occurring at LAX to other airports. Dismissal of these alternatives for their supposed inability to accommodate all maintenance activities anticipated at the WAMA, and the necessity to accommodate some activities at other airports (DEIR at 5-44), ignores the Master Plan's clear policy directive to reduce maintenance activities at LAX.

Response: Consistent with the requirements of CEQA, the WAMA Draft EIR's analysis of project alternatives evaluates the environmental impacts of each alternative in comparison to those of the proposed Project, and also considers the extent to which each alternative responds to the objectives of the Project. Of the five project objectives presented in Chapter 5, *Alternatives*, Section 5.3, of the WAMA Draft EIR, two specifically relate to the LAX Master Plan. One is to "Consolidate, relocate, and modernize some of the existing aircraft maintenance facilities at Los Angeles International Airport (LAX) consistent with the LAX Master Plan" and the other is to "Support consistency with the LAX Master Plan by providing an aircraft maintenance area in the southwest portion of the airport." The commenter is unclear as to how or why these objectives are in conflict with the LAX Master Plan, especially given the fact that the maintenance area square footages in the Master Plan are based on long-term build-out of the Master Plan, which includes removal of several aircraft maintenance facilities such as the former TWA Hangar (268,000 square feet), the US Airways Hangar (19,000 square feet), the American Airlines Low-Bay Hangar (192,000 square feet), and the American Airlines High-Bay Hangar (254,000 square feet), the total of which (633,000 square feet) far exceeds the amount of maintenance hangar area proposed by the WAMA project (290,000 square feet). Additionally, there is no such "clear policy directive" in the LAX Master Plan to reduce maintenance activities at LAX.

WAMA-AL00001-28

Comment: **VI. Conclusion**

In sum, LAWA should take no action to adopt any alternative until it has addressed the DEIR deficiencies and Project recommendations discussed in this letter.

Response: LAWA has considered and provided detailed responses to all comments submitted by the commenter. As indicated in the above responses, the analyses in the WAMA Draft EIR are consistent with CEQA requirements, and in light of the additional information provided through the subject responses to comments, no new significant impacts, substantial increases in the severity of previously disclosed significant impacts, or significant impacts that cannot be avoided through mitigation have been identified. Nonetheless, and despite the adequacy of the EIR, in response to comments LAWA has elected to require tenants of the WAMA site to abide by a number of Project Design Features to respond to identified concerns. As presented in detail in the above responses these Project Design Features are associated with Quarterly Reporting (WAMA-PDF-1), APU Usage While Aircraft is Parked (WAMA-PDF-2), Aircraft Taxiing (WAMA-PDF-3), Aircraft Engine Ground Run-Ups (WAMA-PDF-4), Use of the WAMA Site (WAMA-PDF-5), Automated Run-Up Monitoring System (WAMA-PDF-6), and Resurfacing a Portion of Imperial Highway (WAMA-PDF-7).

WAMA-AL00001-29

Comment: **Exhibit 1**

FIDELL COMMENTS ON LAWA'S WAMA DEIR

INTRODUCTION

The Noise element of the October 2013 Draft Environmental Impact Report of LAWA's "West Aircraft Maintenance Area Project [WAMA]" is defective because it fails to disclose or meaningfully quantify low frequency noise impacts in El Segundo attributable to jet engine maintenance at the proposed facility. The City of El Segundo formally notified LAWA at the start of the EIR process, and again in the course of LAWA's analyses, of its strong concern for quantification and analysis of low frequency noise levels and impacts associated with operation of the WAMA. El Segundo further supplied LAWA with peer-reviewed technical publications which explain the quantification of ground-level, low frequency aircraft noise, and which provide interpretive criteria for assessing impacts of low frequency jet engine noise.

Nonetheless, the analyses described in Section 4.5.4.3 of LAWA's DEIR remain inappropriately and erroneously restricted to analyses of measurements and predictions of A- weighted noise source levels. Rather than taking advantage of the frequency-specific capabilities of Soundplan (the noise modeling software LAWA used to analyze aircraft engine runup-noise), the DEIR confines itself to A-weighted [footnote 1] noise metrics preferred by the Federal Aviation Administration (FAA) for documents compliant with its implementing regulations for the National Environmental Policy Act (NEPA). The DEIR is entirely silent about the annoyance of secondary emissions inside residences.

Footnote 1: The DEIR misconstrues and misleads readers about the utility of A-weighted noise measurements for present purposes when it notes that "With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies." The noise effects of concern in the present case are due to indoor exposure of residents to secondary emissions within residences. Rattling noises that are caused by airborne low frequency noise but produced by rattling objects inside homes are heard at frequencies considerably higher than those of the noises that excite them. The DEIR's reliance on A-weighted

sound levels for measurements and predictions are thus of little direct relevance.

Response: Please see Response to Comment WAMA-AL00001-21 above regarding the fact that studies and claims such as those cited in the comment have been, in fact, reviewed by aviation noise expert organizations, such as the Federal Interagency Committee on Aviation Noise (FICAN), and have not been accepted as valid, but rather were determined to warrant further study and development of supporting evidence.

WAMA-AL00001-30

Comment: FAA's regulatory preferences for defining and assessing noise impacts of aircraft movements are not germane in the present case. Noise that is "loud, unusual, or unnecessary," that "disturbs the peace, quiet, and comfort of any neighborhood, or which causes discomfort to any reasonable person of normal sensitivity in the area," or that create noise levels greater than 5 dB higher than ambient levels in residential areas, exceeds El Segundo's noise standards under the City's Ordinance 1242, 1-16-1996. LAWA's DEIR fails to evaluate the Project's potential noise impacts against El Segundo's standards and to quantify, analyze and disclose bona fide impacts of aircraft noise-induced rattle in residences associated with engine maintenance at the proposed facility. Section 4.5.8 of the DEIR concludes that "no mitigation measures specific to the proposed Project are required" because the DEIR failed to identify any "significant" noise or vibration impacts. This conclusion is faulty because the analyses of the DEIR improperly failed to apply reasonable significance standards and explicitly consider annoyance due to secondary emissions incited by airborne engine run-up noise.

Response: Please see Response to Comment WAMA-AL00001-20 above regarding the absence of proven and accepted scientific evidence in support of the establishment of significance standards related to such impacts.

WAMA-AL00001-31

Comment: DIFFERENCES BETWEEN NOISE IMPACTS OF AIRCRAFT IN FLIGHT AND THOSE ASSOCIATED WITH JET ENGINE RUN-UPS

Noise emissions associated with stationary engine run-ups conducted at the proposed WAMA differ from the noise emissions of aircraft in flight in several ways relevant to disclosure and assessment of WAMA-induced noise impacts. Single event engine maintenance noise is often of considerably greater duration than flyover noise; over-ground propagation paths from engine maintenance facilities to receivers are frequently shorter than air-to-ground propagation paths of flyover noise; and the frequency spectrum of the received noise often contains relatively greater amounts of low frequency noise than that produced by aircraft in flight. Further, airborne low frequency sound levels [footnote 2] produced by large aircraft engines are sufficient to excite secondary emissions (rattling sounds) in exposed residences made by light or vertically suspended architectural elements (e.g., windows, doors, ventilation system ductwork, wall hangings, and other household paraphernalia).

Footnote 2 Structural vibration due to groundborne energy propagated from engine run-up pads to residences is not a pre- requisite for production of audible rattle in residential construction. It is not necessary to shake an entire structure or its foundation to produce highly annoying rattling sounds inside living quarters.

It is the low-frequency content of engine run-up noise that is primarily responsible for rattle in nearby residential structures, as documented by Fidell et al. (1999, 2001), inter alia. The A-weighting frequency network of all of the noise metrics considered in the DEIR discriminates heavily against low frequency noise, as shown in Figure 1. At 50 Hz, for example, Figure 1 shows that A-weighted sound levels are penalized by

more than four orders of magnitude with respect to A-weighted sound levels in the vicinity of 1,000 Hz. [footnote 3] A-weighted noise metrics (such as CNEL and DNL) also understate the relative loudness of low frequency noise of increasing sound levels.

Footnote 3 A change of 10 dB - an order of magnitude - in sound levels is equivalent to a factor of two in loudness. A change of 40 dB thus implies a factor of 16 change in loudness.

As a result, the magnitude of low frequency sound levels that operations at the WAMA would produce in residences in El Segundo, as well as estimates of the prevalence of annoyance associated with such noise events, are conspicuously absent from the DEIR. The technical publications which El Segundo provided to LAWA at the start of its DEIR analyses are based in large part on actual measurements of low frequency noise associated with thrust reverser and start-of-takeoff-roll noise in El Segundo. These references describe the derivation of a dosage-response relationship between low frequency sound levels and the prevalence of high annoyance with rattle, as seen in Figure 2. They also demonstrate that the prevalence of high annoyance due to low frequency engine noise is readily measured at distances of nearly a mile from residences (see Figure 3). It is thus all the more puzzling that LAWA's DEIR omitted any consideration of the information contained in Figure 2.

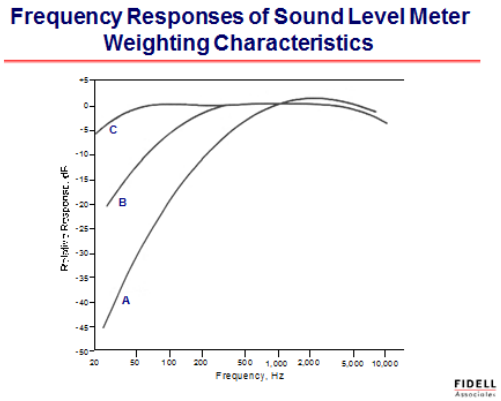

Figure 1: The A-weighting frequency network discriminates heavily against low-frequency sounds

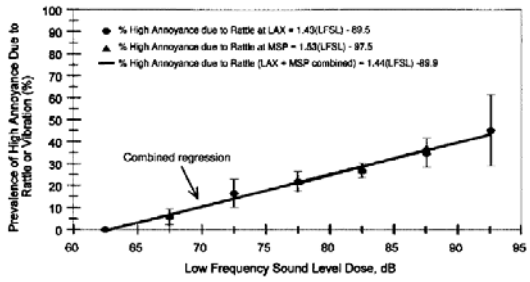

Figure 2: Dosage-response relationship between low frequency sound levels and the prevalence of high annoyance

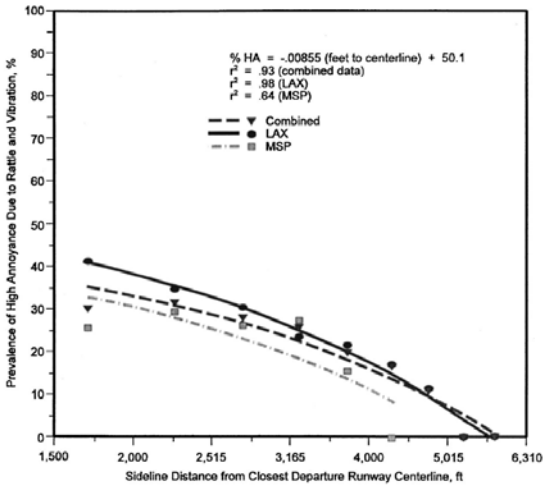

Figure 3: Relationships between distances from low-frequency noise sources and prevalence of residential high annoyance due to rattle and vibration.

Figure 3 shows that about a quarter or more of the residential population is highly annoyed by rattle associated with exposure to low frequency jet engine noise at distances comparable to the distance from the proposed WAMA to some residences in El Segundo. As points of reference, 1) FAA considers a DNL value of 65 dB as a threshold of significant noise impact; and 2) FICON'S (1992) dosage response relationship, on which FAA relies, indicates that 12.3% of the population is highly annoyed by transportation noise exposure at a Day-Night Average Sound Level (DNL) of 65 dB. In other words, the prevalence of high annoyance with rattle and vibration due to low frequency aircraft noise that is likely to be produced at the WAMA is about twice as great as that which FAA considers to define a "significant" noise impact. (In fact, DEIR page 4.5-24 shows that the nearest sensitive receptor in El Segundo is approximately 1,550 feet from the proposed WAMA, so the prevalence of annoyance with indoor rattle caused by engine run-ups may be greater yet.)

Response: Please see Response to Comment WAMA-AL00001-21 above regarding the fact that claims similar to those presented in the comment have been reviewed by aviation noise expert organizations, such as the FICAN, and have not been accepted as valid, but rather were determined to warrant further study and development of supporting evidence.

WAMA-AL00001-32

Comment: REVISIONS REQUIRED TO THE DEIR TO ADDRESS EL SEGUNDO'S CONCERNS

As noted above, the DEIR is written as though it were intended to satisfy FAA's regulatory preferences, even though it is El Segundo's noise concerns that are properly at issue in this case. For example, much of the DEIR's noise modeling is conducted on an "average annual day" basis. Section 7-2-6 of El Segundo's noise ordinance declares that its unlawful to willfully make, produce, suffer or allow to be produced by human voice, machine, animal or device, or any combination of same" loud, unusual, or unnecessary noise which disturbs the peace, quiet and comfort of any neighborhood, or which causes discomfort or annoyance to any reasonable person of normal sensitivity in the area. El Segundo's rules have nothing to do with hypothetical "annual average day" modeling constructs of the sort assumed by FAA's Integrated Noise Modeling software.

El Segundo's noise standards, including the standard for actions causing noise levels

greater than 5 dB higher than ambient levels in residential areas, should have been considered as a significance standard in the DEIR.[footnote 4] At the very least, the DEIR must explicitly analyze and present information about the range (maximum - minimum) and variability (i.e., standard deviation) of low frequency sounds levels to be produced in El Segundo by WAMA operations.

Footnote 4 Even though individual aircraft departures on LAX's southern runway complex routinely produce large numbers of high level noise events in El Segundo, they are of relatively short duration compared with engine run-ups which can last for ten minutes (or more). Thus, notwithstanding existing noise levels in El Segundo caused by departures or arrivals, the DEIR must evaluate single-event noise levels from anticipated engine run-ups at the WAMA using the residential standard in Section 7-2-4 of El Segundo's noise ordinance.

Section 7-2-7 of El Segundo's noise ordinance takes explicit note of ambient noise levels. A revised DEIR needs to include information about low frequency ambient noise levels in El Segundo at different times of day. The most useful information about low frequency noise levels would be characterized by single event sound levels in the 25, 31.5, 40, 50, 63 and 80 Hz one-third octave bands. If LAWA is unaware of such information, the difference between C- weighted and A-weighted single event levels measured by the airport's noise and operations monitoring systems can provide a useful approximation of low frequency sound levels.

Response: Please see the above Responses to Comments WAMA-AL00001-20 regarding the inapplicability and inappropriateness of the El Segundo Noise Ordinance standards to airport activities, such as those anticipated to occur at the WAMA site, and WAMA-AL00001-21 regarding the fact that the types of claims related to aircraft-related low-frequency noise and secondary emissions of rattling impacts from vibration have been reviewed by aviation noise expert organizations, such as the FICAN, and have not been accepted as valid, but rather were determined to warrant further study and development of supporting evidence.

WAMA-AL00001-33

Comment: DEIR Table 4.5-9 assumes that no evening or nighttime engine run-up operations are anticipated at the WAMA by very large, four engine aircraft. The apparent rationale for this assumption is the current absence of such activity shown in Table 4.5-5. It is unclear from the DEIR whether the failure to consider evening and nighttime run-ups by such large aircraft represents a commitment from LAWA never to permit use of the WAMA for such purposes, or whether the failure is merely an expedient one based on one airline's current operating schedule. The distinction is important because Table 4.5-11 on page 4.5-32 of the DEIR displays predicted maximum A-weighted sound levels for B-747 and A-380 aircraft at the WAMA. These are expected to reach A-weighted levels greater than 80 dB in portions of El Segundo, for single event durations as long as ten minutes (600 seconds, per Table 4.5-9). LAWA must clarify whether operations at the WAMA could include evening and nighttime run-ups of large aircraft engines, and if so, evaluate the potential impacts and consistency with LAWA's curfew on nighttime run-ups.

Response: Please see Response to Comment WAMA-AL00001-11 above.

WAMA-AL00001-34

Comment: As a related matter, LAWA should establish automated run-up noise monitoring capability as part of the WAMA project. The automated system should be designed to identify and report run-ups occurring during run-up curfew hours (11 PM - 6 AM). Other than LAWA's virtually meaningless reliance on reporting of "enforcement

actions" each quarter, LAWA currently does not report any explicit monitoring of run-ups. The DEIR, which does not even mention the curfew hours, in fact suggests that run-ups may occur at WAMA during these hours. See, e.g., DEIR at Table 4.5-9 (US Airways to conduct 15.6 run-ups annually between 10 PM and 7 AM).

Response: Please see Response to Comment WAMA-AL00001-22 above.

WAMA-AL00001-35

Comment: Ground run-ups conducted at a fixed location may be distinguished from noise produced by moving aircraft in several ways, particularly if a local noise monitoring station at the WAMA is included as part of the proposed action. These include the durations of ground run-ups (considerably greater than those of aircraft landing, takeoff, and taxiing operations); their temporal envelope (rectangular or multi-modal rather than triangular); their spectral balance (relatively greater low frequency content, as may be gauged by differences between C- weighted and A-weighted short duration time series measurements); and patterns of event onset and offset times at multiple remote measurement sites (due to differences in sound propagation delays).

Response: Please see Response to Comment WAMA-AL00001-22 above.

WAMA-AL00001-36

Comment: Professional Resume of Sanford Fidell

Response: This exhibit provides background information regarding the Resume of Sanford Fidell. This information is noted and is hereby part of the Final EIR, and will be forwarded to the decision-makers for their consideration prior to taking action on the WAMA Project. No further response is required.

WAMA-AL00001-37

Comment: The Schultz curve 25 years later: A research perspective

Response: This exhibit provides background information regarding a published article "The Schultz curve 25 years later: A research perspective". This information is noted and has been considered in LAWA's responses to comments. This information is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-38

Comment: Exhibit 2 – Letter from Shute, Mihaly & Weinberger LLP on behalf of the City of El Segundo dated October 30, 2012 re: LAX West Aircraft Maintenance Area – Notice of Preparation

On behalf of the City of El Segundo, thank you for the opportunity to review the Notice of Preparation ("NOP") for the LAX West Aircraft Maintenance Area Project ("WAMA" or "Project"). We also want to extend our thanks to LAWA staff for holding an initial meeting with El Segundo in connection with the WAMA NOP. With this Project, LAWA is proposing to relocate/consolidate aircraft maintenance activities/facilities in a new location that would bring those activities closer to some El Segundo residents. This is troubling to El Segundo due to potential noise and other impacts, so the City expects to be actively involved in the California Environmental Quality Act ("CEQA") process. We look forward to continued cooperation with LAWA as that process proceeds.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. Potential noise impacts associated with construction and operation of the proposed Project are addressed in Section 4.5, *Noise,* of the WAMA Draft EIR, and other potential impacts of the Project are addressed in the other sections in Chapter 4, *Environmental Impact Analysis*, of the subject document.

WAMA-AL00001-39

Comment: Consultant Collaboration. El Segundo requested and LAWA has agreed to have its CEQA noise consultant (Ricondo and Associates) meet with El Segundo representatives during the CEQA process to discuss modeling inputs and results. To get that cooperative process started, El Segundo has asked LAWA to set up a "kick-off' meeting as soon as possible between El Segundo's noise consultant (Sanford Fidell) and Ricondo. El Segundo has directed its consultant to work cooperatively with Ricondo to ensure the CEQA process for the Project evaluates potential noise impacts in El Segundo clearly/fully and identifies any feasible Project improvements and alternatives (e.g., repositioning and/or placing a roof on the GRE) that would result in noise relief for El Segundo. El Segundo envisions this cooperative arrangement between LAWA and El Segundo technical consultants as similar to that in the ongoing air quality and source apportionment study.

Response: A meeting between representatives of LAWA and of the City of El Segundo, and respective consultants, was held on November 14, 2012, to discuss the scope of and approach to the aircraft noise analysis to be completed for the WAMA Draft EIR. The information and suggestions provided at the meeting was taken into consideration as appropriate in developing the subject noise analysis.

WAMA-AL00001-40

Comment: Master Plan Consistency. The adopted LAX Master Plan calls for construction of new aircraft maintenance facilities at the neighboring Continental hangar site, not the WAMA site identified now by LAWA.[footnote 1] The WAMA Initial Study released by LAWA states as follows in section 2.5: "The proposed Project is a refinement of certain projects contemplated in the LAX Master Plan. Specifically, the proposed Project would transpose an area identified for aircraft apron and maintenance on the east side of Taxiway AA with an area identified for employee parking (West Employee Parking) on the west side of Taxiway AA. Both facilities would remain in the southwest portion of the airport, south of World Way West as proposed under the LAX Master Plan, with access routes to and from each facility remaining essentially unchanged." This language implies that if the WAMA proceeds as planned, LAWA would use the Continental hangar site for employee vehicle parking and would not install any additional aircraft maintenance facilities there. El Segundo seeks assurances regarding the enforceability of such an arrangement.

Specifically, please provide additional details regarding what process would LAWA go through to amend the Master Plan and/or FAA-approved Airport Layout Plan for LAX to reflect the above-described changes. El Segundo is interested in ensuring that if the proposed WAMA is constructed, the vacant land at the Continental hangar site is never developed with aircraft maintenance facilities. To address this concern, LAWA would have to put in place enforceable constraints/commitments to ensure that if the Continental hangar area is ever subject to further development, it would be with employee parking only.

Additionally, the NOP indicates that LAWA is not proceeding with the project on the Continental hangar site at this point because that site is contaminated. The NOP does

not make clear, however, when LAWA expects that contamination to be cleaned up enough for the site to be usable. Please provide that information.

Footnote 1: El Segundo has consistently objected to LAWA's departures from the adopted Master Plan. For example, as we noted in our comments on the CEQA documents for the Bradley West Project, LAWA cannot legally depart from the approved Master Plan in a substantial way without formally amending that plan and conducting the necessary CEQA analysis. Put another way, LAWA cannot continue to tier off the LAX Master Plan EIR if it is no longer proceeding in a manner consistent with the Master Plan.

Response: Section 4.6, *Land Use and Planning,* of the WAMA Draft EIR addresses the relationship between the proposed Project and the LAX Master Plan. The LAX Master Plan Program provides a conceptual framework for future improvements at LAX. As addressed on pages 4.6-9 through 4.6-15 of the WAMA Draft EIR, and as shown in Figure 4.6-3, Summary of Refinements to the LAX Master Plan, the changes in the locations of the Proposed Maintenance Facility and West Employee Parking area would not materially change the conceptual framework for development in the Project area as set forth in the LAX Master Plan Program. As further discussed below under Response to Comment AL00001-19, the Project does not conflict with the LAX Master Plan, and potential for impacts on the physical environment associated with the Project and refinements to the LAX Master Plan have been fully accounted for. See also Response to Comment WAMA-AL00001-4 for additional discussion on that topic. While implementation of the proposed WAMA project does not require modifications or amendments to any local land use regulatory plans or documents applicable to LAX, as discussed in Section 4.6 of the WAMA Draft EIR, it will require an update to the existing Airport Layout Plan (ALP) for LAX. An ALP is a federal regulatory document under the jurisdiction of the Federal Aviation Administration (FAA). Section 4.3, *Hazards and Hazardous Materials*, of the WAMA Draft EIR describes the subsurface contamination associated with past use of the former Continental Airlines aircraft maintenance area, and Chapter 5, *Alternatives*, Section 5.6.2, *No Project-Existing LAX Master Plan Alternative,* of the WAMA Draft EIR addresses potential issues associated with development of a new aircraft maintenance hangar at that site, including as related to potential impacts on the groundwater remediation program that could result from such development.

WAMA-AL00001-41

Comment: Alternative locations. El Segundo respectfully requests that LAWA evaluate one or more alternatives in the Draft Environmental Impact Report ("DEIR") that sites the new aircraft maintenance facilities somewhere other than near El Segundo's residential community (i.e., away from the southwestern area of LAX). Consideration should be given to locations that are further north and east, away from residential uses (e.g., the Western Remote Gate Area discussed below).

Response: As evaluated in Chapter 5, *Alternatives,* of the WAMA Draft EIR, four alternatives to the proposed Project were ultimately selected to consider means for avoiding or substantially lessening the significant impacts of the Project. These Alternatives included: 1) a No Project-No Development Alternative; 2) a No Project-Existing LAX Master Plan Alternative; 3) a Reduced Project Alternative and; 4) an Alternate Site Alternative located in the eastern portion of the airport, south of Century Boulevard and east of Sepulveda Boulevard within the Delta and United Airlines Complex area, which is located farther away from residential development in El Segundo.

As further discussed in Chapter 5, *Alternatives,* of the WAMA Draft EIR, other sites at LAX not located within the southwestern portion of the airport were considered for the

Project, and, as suggested by the commenter, a site in the eastern portion of LAX was evaluated and included in the WAMA Draft EIR as the "Alternate Site Alternative." As explained in Chapter 5, *Alternatives*, of the WAMA Draft EIR, under Section 5.4, on page 5-3, other alternatives, including the West Remote Pads/Gates, were not carried forward for analysis as they were either not available for development or were located in areas without feasible access and proximity to runways and taxiways.

WAMA-AL00001-42

Comment: Use of Western Remote Gates Area. In discussions with El Segundo, LAWA staff has indicated that LAWA considered locating this proposed WAMA facility at the current location of the Western Remote Gates, but rejected that possibility due to space and timing constraints. While El Segundo understands that some of the Western Remote Gates area must remain intact until after the proposed Midfield Satellite Concourse ("MSC") is complete, a portion of that area would be available for construction of aircraft maintenance facilities (e.g., a hangar, some Remain Overnight ("RON") spots, some Remain All-Day ("RAD") parking, and/or the Ground Run-up Enclosure ("GRE")). To address that possibility, LAWA should provide a drawing showing some of the proposed WAMA facilities superimposed on the Western Remote Gates area. LAWA should also make clear its phasing plan for the timing/relationship of the WAMA, MSC and decommissioning of the Western Remote Gates.

Response: As discussed in Chapter 5, *Alternatives,* of the WAMA Draft EIR, although the West Remote Pads/Gates site was investigated in whole and in part as an alternative location for the proposed Project, it was not carried forward for further analysis because the site is highly utilized for passenger gate facilities and for aircraft parking (i.e., RON/RAD), including special-purpose use (i.e., super-jumbo aircraft parking and high-security areas) and would not be available for use during the time frame required for development of WAMA. Regarding the request for further clarification as to why the West Remote Pads/Gates are not a feasible location for the Project, see Response to Comment WAMA-AL00001-25.

WAMA-AL00001-43

Comment: Replacement of Existing Facilities. The NOP does not make clear exactly which maintenance facilities the WAMA will replace. El Segundo would like to know the location, orientation, tenant(s) and size of each such facility (including maintenance hangars, blast fences used for run-ups, etc.). El Segundo has asked LAWA to produce a drawing/map showing those things. Clear documentation is critical here to ensure that the maintenance facilities slated for replacement are actually decommissioned and do not continue to be operated following WAMA completion.

Response: Please see Response to Comment WAMA-AL00001-16 regarding the existing aircraft maintenance operations and aircraft parking positions that would be replaced with implementation of the proposed Project, and the commitment LAWA will make to cease aircraft maintenance operations, and associated RON/RAD parking, in those existing areas once WAMA site development is completed.

WAMA-AL00001-44

Comment: Additionally, the DEIR's noise analysis should include a comparative analysis of the noise impacts associated with the proposed Project relative to existing conditions.

Response: As evaluated in Chapter 4.5, *Noise,* and Appendix C, *Noise Analysis and Worksheets,* of the WAMA Draft EIR, potential noise and ground-borne vibration impacts were analyzed that could result from the development of the proposed Project. The

analysis described and measured the existing noise environment within the Project area (as shown in Table 4.5-6, Existing Conditions Aircraft Run-up CNEL by Location), estimated future noise and ground-borne vibration levels at surrounding land uses resulting from construction and operation of the proposed Project (as shown in Table 4.5-8, Estimate of Construction Noise Levels (Leq) at Off-Site Sensitive Receiver Locations in the City of El Segundo and Table 4.5-10, Comparison of Aircraft Run-up CNELs for Existing Conditions and Proposed Future Conditions with the Proposed Project by Location) and evaluated the potential for significant impacts.

WAMA-AL00001-45

Comment: Operational Noise. The City of El Segundo has concerns regarding potentially significant operational noise impacts caused by aircraft operations at the GRE and in the WAMA generally (including in and around the aircraft maintenance hangars, on the aprons and during taxiway movements). El Segundo's noise standards (attached) should be utilized in the analysis and the Project should not create noise impacts to residential uses in the neighborhoods along northern El Segundo.

Response: As the City of El Segundo is aware, and as stated in Chapter 1, *Introduction* and *Executive Summary,* of the WAMA Draft EIR, the proposed Project no longer includes a GRE that was originally contemplated for the Project site. The results of a preliminary GRE noise analysis determined that development of the GRE at the Project site would provide only a minimal noise reduction benefit to sensitive receptors nearby. Therefore, LAWA has eliminated the placement of the GRE at the Project site and will conduct a separate airport-wide GRE siting study. LAWA will work with stakeholders on development of the airport-wide GRE siting study.

Please see Response to Comment WAMA-AL00001-20 regarding utilization of the City of Segundo's noise standards.

WAMA-AL00001-46

Comment: GRE Design. El Segundo looks forward to working with LAWA on the proposed design specifications for the GRE (and receiving any additional design information already developed by/for LAWA). We understand that historically, the principal purveyor of GREs in the United States has been Blast Deflectors, Inc. ("BDI"). Although LAWA may intend/propose to use a standard product from BDI (or some other company), El Segundo encourages LAWA to engage in a competitive (rather than sole source) procurement process. Such a process should seek to maximize the degree to which the final GRE structure attenuates/absorbs sound through customization of components to meet specifications developed in consultation with El Segundo's noise consultant.

Response: The comment is noted. Please see Response to Comment WAMA-AL00001-45 regarding the GRE that is no longer contemplated on the Project site.

WAMA-AL00001-47

Comment: GRE Evaluation. The noise from ground run-ups associated with maintenance activities at the WAMA is likely to cause significant single event noise impacts for El Segundo residences. This is due in part to the static nature and long duration of run-ups, particularly when compared with normal aircraft departures, which are non-static and shorter in duration. As such, it is critical that LAWA conduct a comprehensive single event noise analysis as part of the DEIR. Additionally, LAWA should consider the possibility of a roof on the proposed ground run-up enclosure (GRE) and be sure that the walls are thick enough to attenuate low- frequency noise.

Rules for GRE Use. The NOP does not make clear what rules would apply to use of

the GRE. For example, would all run-ups in the WAMA need to take place in the GRE or could some occur in the maintenance hangers or elsewhere on the site or airport? Would aircraft undergoing maintenance outside the WAMA area be brought to the WAMA to use the GRE or would they continue to engage in run-ups at other locations around LAX using blast fences or other facilities. During what hours could run-ups take place at the GRE/WAMA? How would GRE use restrictions be enforced by LAWA? What would the penalties be for violations? Would the proposed maintenance facility include noise monitors to detect run-ups? Would LAWA modify the noise abatement procedures contained in its published rules for LAX to address GRE use?

Evaluating GRE Noise Reduction. We understand that A-weighted noise reductions for GREs at other airports can be on the order of up to 20 dB (or less). A-weighted noise reductions are most greatly influenced by acoustic energy in the two octaves above 1 kHz. A good part of the noise exposure problem in El Segundo, however, is caused by lower frequency energy. Low frequency energy can cause rattling noises in homes. See attached articles by Fidell et al. (1998, 2002), which have shown that many people in El Segundo and elsewhere are highly annoyed by such rattling sounds.

Large jet engines create appreciable acoustic energy in the six one-third octave bands centered at 25, 31.5, 40, 50, 63, and 80 Hz. The A-weighting network, however, discriminates against acoustic energy at 50 Hz by more than 44 dB. Thus, a GRE that reduces A-weighted sound levels of engine run-ups by 20 dB may reduce low frequency sound levels by far less. The DEIR must take this into account in evaluating the single event and other noise impacts associated with the WAMA/GRE.

Response: Please see Response to Comment WAMA-AL00001-45 regarding the GRE that is no longer a component of the proposed Project and Response to Comment WAMA-AL00001-21 regarding low frequency noise.

WAMA-AL00001-48

Comment: Evaluating Noise and Terrain. The DEIR must also take into account the terrain surrounding the proposed WAMA and the relative elevation of the proposed WAMA as compared to nearby residences in El Segundo. [Footnote 2] Portions of residential areas in El Segundo are elevated above airport terrain. The standard GRE design may therefore not be able to provide much attenuation of run-up noise for such residences, underscoring the need for a custom GRE. It is critically important that the specifications, design criteria, and acceptance testing for the GRE include measurements of attenuation not only at ground level, but also at elevations of as much as a few hundred feet. Additionally, noise testing must take place at some points actually located in the residential areas of El Segundo. We look forward to working with LAWA and its technical consultants on these issues.

Footnote 2 The NOP does not make clear how much fill LAWA proposing at the project site. At our meeting, LAWA staff indicated that LAWA would be leveling out existing dirt piles at the project site as part of WAMA. In order to understand how noise will propagate from the site, El Segundo would like to know the finished grade elevation LAWA expects to achieve as part of the WAMA Project.

Response: Notwithstanding that the currently proposed Project does not include a GRE, the aircraft engine ground run-up noise analysis completed for the WAMA Draft EIR takes into account changes in elevation. The subject noise analysis included noise measurements in residential areas, including in El Segundo at locations closest to the WAMA site – see Section 4.5, *Noise,* of the WAMA Draft EIR.

Regarding the finish grade elevation of the WAMA site, it was initially anticipated to be

approximately 110 feet above mean sea level (MSL), as indicated on page 4.2-37, in Section 4.2, *Greenhouse Gas Emissions*, of the WAMA Draft EIR; however, with subsequent refinements to the design engineering plans for the project, it is now anticipated to be approximately 104 feet above MSL. That refinement to the anticipated finish grade elevation of the WAMA site does not change the conclusions of the Draft EIR analysis.

WAMA-AL00001-49

Comment: Wind Direction. Since many residents of El Segundo live in areas that can be downwind of the proposed GRE location, it is also important that the DEIR analysis and GRE design specifications take wind direction and speed into consideration. A GRE that provides useful amounts of noise reduction in still air may provide far less noise reduction under downwind propagation conditions.

Response: As discussed on page 1-2, in Chapter 1, *Introduction*, of the WAMA Draft EIR, the currently proposed Project does not include a GRE; hence, the comment is moot.

WAMA-AL00001-50

Comment: Evaluating CNEL Impacts. In addition to conducting single-event noise analysis for the Project, the DEIR must estimate the expected impacts of WAMA (including GRE) operation on the community noise exposure level (i.e., the noise contours around LAX). Engine run-ups are often conducted in conjunction with other nighttime aircraft maintenance. As such, many may be subject to the 10 dB nighttime penalties of the CNEL and DNL noise metrics. LAWA's DEIR should quantify any changes in CNEL/DNL associated with the proposed Project at several points in El Segundo via noise modeling. This analysis should also look at how noise exposure reductions might be achieved (e.g., through use of an alternative site and/or design).

Response: As discussed in Section 4.5, *Noise,* of the WAMA Draft EIR, the noise analysis completed for the project addressed both single-event noise levels and CNEL impacts, and concluded that there would be no significant noise impacts (i.e., it is not necessary to evaluate how noise exposure reductions might be achieved).

WAMA-AL00001-51

Comment: Second GRE. LAWA is obligated to construct two GREs. Where and when is LAWA proposing to install the second GRE?

Response: The location and timing of future GRE construction will be determined based on a pending airport-wide GRE siting study. Please see Responses to Comments WAMA-AL00001-45 regarding the elimination of the GRE formerly proposed for the Project Site.

WAMA-AL00001-52

Comment: Phasing Plan. The NOP indicates that it will take 8-10 years to implement the WAMA, but does not make clear why it will take so long. In discussions with LAWA staff, El Segundo learned that while the complete WAMA Project will take 8-10 years to implement, initially, only some of the proposed facilities will be built (e.g., one of the proposed hangars). The DEIR should provide a phasing plan showing how and when LAWA anticipates building out the WAMA project over the 8-10 year period. LAWA must also make clear whether and to what extent, during the build-out period, it will continue to use the proposed WAMA site for construction staging for other projects at LAX. Finally, LAWA must keep its proposed phasing plan in mind as it evaluates the

feasibility of possible alternative sites (e.g., the Western Remote Gates Area).

Response: Section 2.7, in Chapter 2, *Project Description*, of the WAMA Draft EIR describes the timing and development phasing of the proposed Project.

WAMA-AL00001-53

Comment: Qantas Hangar Configuration. In discussions with El Segundo, LAWA staff indicated that Qantas (one of the future WAMA tenants) is proposing a hangar configuration slightly different from that shown in the NOP. The DEIR should obviously evaluate the facilities actually being proposed.

Response This comment addresses the Initial Study (IS) and Notice of Preparation (NOP), included as Appendix A of this EIR that was circulated for public review from September 14, 2012 to October 15, 2012. Subsequent to release of the IS/NOP and based on public input and LAWA coordination with the FAA minor refinements have been made to certain components of the proposed Project. These refinements are described on Pages 1-1 and 1-2 within Chapter 1, *Introduction and Executive Summary,* of the WAMA Draft EIR. These refinements include a reconfiguration of the aircraft maintenance hangar area and a reduction in size from approximately 400,000 square feet to approximately 290,000 square feet of hangar bay space (floor area).

Furthermore, the WAMA Draft EIR fully describes and evaluates the proposed facilities on the WAMA site. As described in Chapter 2, *Project Description,* of the WAMA Draft EIR, the proposed Project would provide facilities and areas for aircraft maintenance and maintenance hangars, as well as parking areas for aircraft and employees. These facilities are described in detail and are depicted within Figure 2-4 (in Chapter 2, *Project Description*, of the WAMA Draft EIR) which illustrates the conceptual site plan associated with the proposed Project.

WAMA-AL00001-54

Comment: Cumulative Projects List. The most recent version of the cumulative projects list (October 2012) generated by the City of El Segundo is attached for your reference. Please incorporate this data into your cumulative projects analysis.

Response: Attachment received. The projects delineated in the cumulative projects list provided by the City of El Segundo are generally removed from the WAMA project site and the most notable potential for cumulative impacts from the combination of those projects in El Segundo and the WAMA project relates to off-airport traffic. The cumulative impacts analysis in the WAMA Draft EIR considers traffic volumes from two sources consisting of (a) the direct traffic effect of known projects in the immediate vicinity of the Project area and (b) ambient growth in background traffic from other local area projects in the region. The construction projects in the immediate Project area are described on page 4.7-25, in Section 4.7, *Construction Surface Transportation*, of the WAMA Draft EIR, and were directly modeled in the traffic study. The traffic generated by the development of other "non-airport" projects located outside of the immediate project area, including those listed in the City of El Segundo cumulative projects list, were indirectly calculated by increasing background traffic using the study area intersections by two percent annually through the 2018 analysis horizon. This two-percent annual growth assumption, coupled with the addition of traffic volume from the projects in the immediate study area, is anticipated to produce a conservative cumulative traffic volume scenario that would account for the traffic associated with the cumulative projects list provided by the City of El Segundo.

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WAMA-AL00001-55

Comment: Truck routes. El Segundo's General Plan Circulation Element establishes truck haul routes through the City (see attached Circulation Element Exhibit C-13). The City of El Segundo requests that truck trips during construction avoid the City of El Segundo, however, if any travel through the City occurs, that it must be in compliance with the City's adopted truck routes.

Response: Please see Response to Comment WAMA-AL00001-24 regarding designated truck haul routes.

WAMA-AL00001-56

Comment: Thank you for the opportunity to comment on the LAX West Aircraft Maintenance Area Project. We look forward to commencing the cooperative process between our noise consultant and LAWA's. Please advise when you are ready to set up the "kick off" meeting between Ricondo & Associates and Sanford Fidell. Finally, we request that this firm and the City of El Segundo Planning and Building Safety Department receive a copy of the Draft EIR.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. A copy of the WAMA Draft EIR was sent to Shute, Mihaly & Wienberger LLP, as well as the City of El Segundo Planning and Building Safety Department. The WAMA Draft EIR was also available at www.ourlax.org, at LAWA Administrative Offices and at four nearby public libraries (Westchester-Loyola Village Branch Library, El Segundo Library, Inglewood Library, and Culver City Library).

WAMA-AL00001-57

Comment: LAX Rules and Regulations: Aircraft Noise Abatement Operating Procedures and Restrictions

Response: This exhibit provides background information related to the LAX Rules and Regulations. This information is noted and is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-58

Comment: El Segundo Municipal Code Chapter 7-2 "Noise and Vibration"

Response: This exhibit provides background information related to the City of El Segundo Municipal code. This information is noted and has been considered in LAWA's responses to comments. The exhibit is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-59

Comment: El Segundo General Plan Noise Element Excerpts (Goals, Policies, and Objectives)

Response: This exhibit provides background information related to the City of El Segundo General Plan. This information is noted and has been considered in LAWA's responses to comments. The exhibit is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-60

Comment: Recap of September 20, 2010 Meeting of LAX/Community Noise Roundtable

Response: This exhibit provides background information related to the LAX/Community Noise Roundtable meeting on September 20, 2010. This information is noted and has been considered in LAWA's responses to comments. This information is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-61

Comment: El Segundo General Plan Circulation Element Truck Haul Route Map (Exhibit C-13)

Response: This exhibit provides background information related to the City of El Segundo General Plan. This information is noted and has been considered in LAWA's responses to comments. This information is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00001-62

Comment: El Segundo General Plan Circulation Element Excerpts (Goals, Policies, and Objectives)

Response: This exhibit provides background information related to the City of El Segundo General Plan. This information is noted and has been considered in LAWA's responses to comments. This information is hereby part of the Final EIR, and will be forwarded to the decision-makers for their review and consideration as part of the decision-making process on the WAMA project. No further response is required.

WAMA-AL00002 Lichman, Barbara **Buchalter Nemer for Cities of Inglewood, Culver City and Ontario ("Cities") and County of San Bernardino ("County")** **12/2/2013**

WAMA-AL00002-1

Comment: The following are the comments of the Cities of Inglewood, Culver City and Ontario ("Cities") and County of San Bernardino ("County") (collectively "Cities/County") on the Draft Environmental Impact Report ("Draft EIR") for Los Angeles International Airport ("LAX") West Aircraft Maintenance Area Project ("Project")[1]

Footnote 1: Cities/County also incorporate here Cities' comments of October 30, 2012 on the Notice of Preparation for the Project as if set forth herein in full.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. Please see Response to Comment WAMA-AL00002-2 below.

WAMA-AL00002-2

Comment: Cities/County's principal concerns, in addition to those articulated in Cities' previous comments, relate to the use of Alternative D of the 2005 Master Plan (also Alternative 3 in the currently approved Master Plan) as both the "No Project" alternative, against which the future impacts of the Project will be compared, and the template for on-airport related projects for the purpose of analyzing the Project's cumulative impacts. In both instances, the use of Alternative D is inappropriate for the following reasons.

First, the settlement of the 2005 challenge to the manifest inadequacy of L.A. World Airports ("LAWA") environmental review ("Stipulated Settlement") for the 2005 Master Plan specifically mandated replacement of critical aspects of Alternative D, the "Yellow Light Projects."[2] The Stipulated Settlement remains under the jurisdiction of the court. Consequently, the use of the 10 year old judicially superseded Master Plan Alternative D as the basis for comparison with the future impacts of the Project, instead of the project approved by the L.A. City Council in May, 2013, inevitably leads to a distortion in the analysis of the Project's future environmental impacts, and a manifest violation of CEQA.

Footnote 2: The "Yellow Light Projects" include "(a) Development of the Ground Transportation Center ('GTC'), including the baggage tunnel, associated structures and equipment; (b) Construction of the Automated People Mover ("APM") from the GTC to the Central Terminal Area ('CTA'), including its stations and related facilities and equipment; (c) Demolition of CTA Terminals 1, 2 and 3; (e) [sic] Reconfiguration of the north airfield as contemplated in the LAX Master Plan, including center taxiways [i.e., movement of the southernmost runway of the North Complex, Runway 6R/24L, 340 feet south]; and (f) Improvements to on-site roadways associated with (a) and (b) above," Stipulated Settlement, "Definitions;" see also § V.D.l.

For example, Alternative D's plan for the movement of Runway 6R/24L 340 feet south bring those runways closer to what is now planned for the Runway Maintenance Area than the Preferred Alternative adopted in the 2013 Master Plan which moves Runway 6L/24R 240 feet north. The location of the runway to the north may require longer taxi times and potentially longer engine idling times which can have an impact on the EIR's air quality analysis. Similarly, construction impacts may be greater if the North Runway Complex is not moved to the south. In short, the Draft EIR poses a host of unknowns and unaddressed impacts which render it inadequate and in violation of CEQA.

Cities/County therefore respectfully request that LAWA revise the Draft EIR consistent with the Cities' prior comments and with the airfield runway configuration approved by the City Council in May, 2013, and thanks LAWA for this opportunity to comment.

Response: As required by Section 15126.2 of the CEQA Guidelines, the potential impacts of the proposed Project are assessed by examining the changes in the existing physical conditions in the affected area as they exist at the time the Notice of Preparation was published (September 14, 2012). Though for certain issue areas (i.e., Section 4.2, *Greenhouse Gas Emissions,* of the WAMA Draft EIR) where data specific to that timeframe were unavailable or incomplete, more current information was utilized to define the environmental baseline. The baseline is established in the existing environmental setting analysis of the WAMA Draft EIR (Chapter 3.0, *Overview of Project Setting*). As described in Chapter 5.0, *Alternatives*, under the No Project alternative analyzed in the WAMA Draft EIR, the physical conditions associated with the site and its activities would remain essentially the same as under the existing (baseline) conditions.

The commenter is incorrect in stating that the action taken by the Los Angeles City Council in May 2013 regarding LAX amended or superseded the LAX Master Plan. The City Council action taken on May 14, 2013 was a technical amendment to the ordinance attached to the Council File No. 13-0285, which was previously acted upon at the City Council meeting of April 30, 2013. At the April 30, 2013 meeting, the actions taken by the City Council relative to the LAX Specific Plan Amendment Study (SPAS) included the following:

"SELECT the staff-recommended alternative as the best alternative to the problems that the Yellow Light Projects were designed to address, subject to future detailed planning, engineering, and project-level environmental review, such as project-level review of individual improvements under the California Environmental Quality Act (CEQA) and evaluation and approval processes of the Federal Aviation Administration (FAA). Approval of the staff-recommended alternative would provide the platform from which the specific details of the proposed improvements would be further defined and evaluated in connection with current and future FAA standards."

The action by the City Council did not modify the existing LAX Master Plan, but rather selected a SPAS alternative for advancement to further planning, engineering, and project-level environmental review, including the evaluation and approval processes of the FAA. The FAA's evaluation includes environmental review pursuant to the National Environmental Policy Act (NEPA). LAWA has not requested the initiation of NEPA analysis or project-level CEQA analysis for any of the SPAS projects.

The commenter is correct in identifying those elements of the approved LAX Master Plan that are indicated in the LAX Master Plan Stipulated Settlement Agreement as requiring further evaluation in order to be implemented. Those elements, referred to as the "Yellow Light Projects," do not include the aircraft maintenance facilities contemplated in the LAX Master Plan to occur in the southwest portion of the airport.

Because the LAX Master Plan was not amended or superseded by the City Council actions in 2013, and because the proposed WAMA (Project) and Project area is not subject to the additional evaluation requirement of the Yellow Light Projects, the LAX West Aircraft Maintenance Area Project (WAMA) Draft Environmental Impact Report's (Draft EIR's) analysis of the No Project-Existing LAX Master Plan Alternative is valid and appropriate. Additionally, the WAMA Draft EIR includes evaluation of a No Project-No Development Alternative, which assumes no improvements at the Project site.

Notwithstanding the above, the commenter's example regarding potential differences in aircraft taxiing times given that the LAX Master Plan assumes the southward relocation of Runway 6R/24L while the SPAS staff-preferred alternative proposes the northward relocation of Runway 6L/24R is immaterial to the Project. The Project is proposed to provide aircraft maintenance facilities and aircraft parking positions. Aircraft taxiing to or from the WAMA site would be traveling from or to the terminal/gate areas or other maintenance areas, at which the WAMA Draft EIR addresses the potential air quality and noise impacts of such aircraft taxiing operations compared to existing conditions. Aircraft using the WAMA facilities would not be coming directly to or from runways.

WAMA-AL00003 Patonai, Michael City of Los Angeles, Department of Public Works, Bureau of Engineering, West Los Angeles District 11/6/2013

WAMA-AL00003-1

Comment: Your request for review of this project by the Bureau of Engineering was referred to the West Los Angeles District Office for my reply.

After a review, we find no current Public Works project that would be affected by the construction of your project.

I would also point out a few areas that we would review during the design/construction phase. The following items would be looked at:

1. Possible dedication of 2-foot on the Pershing Drive frontage with construction of a 12' wide sidewalk.

2. Protect in place the North Outfall Sewer (NCOS). Obtain approval from the Bureau of Sanitation.

3. Submit an approved Standard Urban Storm Water Mitigation Plan (SUSMP) to WLA District Office, Bureau of Engineering (BOE) B-Permit Section.

4. Submit completed site/roof drainage plan and erosion control plan and grading plan to WLA BOE B-Permit section.

5. Submit Hydrology report (pre and post construction) and [sic] to WLA BOE for review and approval.

6. Submit completed detention basin B-permit construction plan and detention basin calculation to WLA BOE B-Permit section for review and approval.

7. Contact LA County Flood Control District to discuss any potential requirements that may pertain to the proposed project including the ultimate storm flow discharge associated with the proposed work via existing city storm drain system located in Pershing Drive to the existing LA County Storm Drain pipe located in Imperial Highway.

If you have any further questions, please contact me at (310) 575-8381.

Response: Thank you for confirming that there is no current Public Works project that will be affected by the construction of the Los Angeles International (LAX) West Aircraft Maintenance Area (WAMA) Project ("proposed Project"). The Los Angeles World Airports (LAWA), the future tenants of the hangar(s), and/or designated construction contractors are expected to be submitting engineering plans for your review as part of the pre-construction requirements associated with the Project. The following responses to your comments pertain to issues not related to the Environmental Impact Report (EIR) analysis of the proposed Project, but rather to construction design reviews and approvals of the Project:

1. Regarding the possible dedication of 2-foot on Pershing Drive frontage with construction of a 12-foot wide sidewalk, LAWA will discuss this with your office during design review.

2. Regarding the protection in place of NCOS, please note that the current design plans identify the NCOS to be protected in place. It is estimated that there will be approximately 50 feet of cover over the NCOS pipe. Furthermore, the blast

fence foundation is outside of the BOS sanitary sewer easement. As appropriate, the necessary permits will be obtained from BOS.

3. Regarding submittal of an approved SUSMP to BOE's 'B' Permit Section, LAWA will submit an approved SUSMP to BOE for a 'B' Permit for the portion of the Project to be constructed by LAWA (primarily aircraft parking apron and access taxiway). It is expected that a 3rd party developer will do the same related to construction of hangar(s) and associated facilities adjacent to the LAWA constructed apron.

4. Regarding request to submit a site/roof drainage plan and erosion control plan and grading plan to BOE 'B' Permit section, LAWA will submit plans to BOE for a 'B' Permit for the portion of the Project to be constructed by LAWA (primarily aircraft parking apron and access taxiway). It is expected that a 3rd party developer will do the same related to construction of hangar(s) and associated facilities adjacent to the LAWA constructed apron.

5. Regarding submittal of a hydrology report (pre and post construction) to WLA BOE for review and approval, on January 16, 2014, LAWA delivered a copy of the hydrology report associated with the analysis in the WAMA Draft EIR, the *City of Los Angeles, Los Angeles World Airports, West Maintenance Area, Los Angeles International Airport, Engineer's Design Report: Appendix F, Drainage Design Report*, prepared for Los Angeles World Airports by Atkins, August 9, 2013. LAWA also intends on submitting to BOE the hydrology report as part of the design and construction approvals associated with the Project.

6. Regarding submittal of detention basin plan and calculation, the infiltration system will be included as part of design drawings to be submitted to WLA BOE.

7. As for the contacting of the LA County Flood Control District to discuss requirements that may pertain to storm discharge via the existing City storm drain located in Pershing Drive to the existing LA County Storm Drain pipe located in Imperial Highway, the connection of the proposed storm drain is to a City of Los Angeles facility, and the permit will be issued by the City. Since the City facility connects to a County of Los Angeles facility at the downstream end (Imperial Highway), the Project design team has also coordinated with the County of Los Angeles. The design of the Project has taken into account the City and County facilities, and the hydraulics analysis concluded that there are no adverse impacts at either City or County facility.

WAMA-AL00004 Cruz, Ruben **County of Los Angeles, Department of Public Works** **12/2/2013**

WAMA-AL00004-1

Comment: Thank you for the opportunity to review the DEIR for the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project. The proposed project is to consolidate, relocate, and modernize the existing aircraft maintenance facilities at LAX, consistent with the LAX Master Plan. The proposed Project would allow for more efficient and effective maintenance of existing aircraft at the airport, including Aircraft Design Group (ADG) VI aircraft (Airbus A380s and Boeing 747-8s). The proposed Project would include aircraft parking and maintenance facilities, employee parking areas, and related storage, equipment and facilities. The proposed Project would be able to accommodate up to 10 ADG VI aircraft simultaneously or a mix of smaller aircraft on the site.

The following are County of Los Angeles, Department of Public Works comments and are for your consideration and relate to the environmental document only:

Response: Please see Responses to Comments WAMA-AL00004-2 through WAMA- WAMA-AL00004-7 below.

WAMA-AL00004-2

Comment: **Hydrology and Water Quality:**

1. Section 4.4.6.1 Hydrology, Item 4.4.6.1.1 Drainage, Table 4.4-4 Peak Stormwater Runoff Flows Under the Proposed Project, Page 4.4-24; the DEIR did not include detailed hydrologic calculations and hydrologic maps to verify the peak flow rates itemized on the table. The source of the information on Table 4.4-4 was given as "*City of Los Angeles, West Maintenance Area, Los Angeles International Airport, Engineer's Design Report,-Drainage Design Report, 100% Design Submittal, prepared for Los Angeles World Airports by Atkins, August 2013*." Submit a copy of the Drainage Design Report for review and approval to our Public Works, Water Resources Division.

For questions regarding the hydrology and water quality comment 1, please contact Mr. Peter Imaa of Water Resources Division at (626) 458-6174 or pimaa@dpw.lacounty.gov.

Response: Comment is noted. On January 16, 2014, LAWA delivered to Los Angeles County Department of Public Works, Water Resources Division, a copy of the hydrology report associated with the analysis in the LAX West Aircraft Maintenance Area Project (WAMA) Draft Environmental Impact Report (EIR), the *City of Los Angeles, Los Angeles World Airports, West Maintenance Area, Los Angeles International Airport, Engineer's Design Report: Appendix F, Drainage Design Report*, prepared for Los Angeles World Airports by Atkins, August 9, 2013. LAWA also intends on submitting to the County, as applicable, the hydrology report as part of the design and construction approvals associated with the Project.

WAMA-AL00004-3

Comment: 2. Section 4.4.3.1.2 Water Quality – National Pollutant Discharge Elimination System Program, item NPDES – Municipal Permit, Page 4.4.5; the new Stormwater Permit was adopted in 2012, and the language should be revised to remove references to the 2001 Stormwater permit, including language on the Principal Permittee (the 2012 permit does not designate one).

Response: The text in Section 4.4.3.1.2, *Water Quality*, has been revised to reflect the current National Pollutant Discharge System Elimination System (NPDES) permit. These minor text revisions do not invalidate the conclusions reached in the WAMA Draft EIR. Please refer to Chapter 3, *Corrections and Additions to the West Aircraft Maintenance Area Project Draft EIR*, of this Final EIR for text revisions.

WAMA-AL00004-4

Comment: 3. Section 4.4.3.1.2 Water Quality, Water Quality Control Plan, Page 4.4-4; the pollutants of concern associated with wet weather flow should be evaluated and based on information from the Water Quality Control Board not the Santa Monica Bay Restoration Plan.

Response: The discussion of the *Santa Monica Bay Restoration Plan* was included to provide an overall picture of water quality in the Santa Monica Bay. The text in Section 4.4.2.2, *Water Quality*, has been revised to remove the discussion of the *Santa Monica Bay Restoration Plan* and to include TMDLs developed by the Los Angeles Regional Water Quality Control Board (LARWQCB) for the Santa Monica Bay. These minor text revisions do not invalidate the conclusions reached in the WAMA Draft EIR. As discussed in Section 4.4.6.2.2, *Operation – Wet Weather Pollutant Loads,* and Section 4.4.6.2.3, *Operation – Dry Weather Pollutant Loads*, of the WAMA Draft EIR, the Project would include best management practices (BMPs) as part of a Project-specific Standard Urban Stormwater Mitigation Plan to reduce pollutant loads in runoff from the Project site. BMPs proposed for the Project include a detention/infiltration basin, oil-water separators, media filters, a water recycling system, porous pavement, and hangar roof drains. Additional measures may also include but are not necessarily limited to drain inserts/water quality inlets in combination with the media filters, or other equivalent measures. Further, a recycling system would be utilized for the wash rack system, which would discharge all non-returnable flows to the sanitary sewer system for treatment at the Hyperion Treatment System. As concluded therein, because both wet- and dry-weather flows from the Project site would be treated by Project-specific BMPs, the Project would not result in additional pollutant loading to 303(d)-listed water bodies, including pollutants for which Total Maximum Daily Loads (TMDLs) have been developed.

WAMA-AL00004-5

Comment: 4. Section 4.4.3.1.2 Water Quality, Water Quality Control Plan, Pages 4.4-4 and 4.4-5; reference to the Basin Plan language should be revised to reflect the current status of the Santa Monica Bay Bacteria and Debris Total Maximum Daily Load (TMDL). The bacteria TMDL was revised in 2012, while the Debris TMDL has been in effect since March 2012 and the Ocean Plan was revised in 2012.

Response: The text in Section 4.4.3.1.2, *Water Quality*, has been revised to reflect the most recent updates to the LARWQCB Water Quality Control Plan and State Water Resources Control Board California Ocean Plan. These minor revisions do not invalidate the conclusions reached in the WAMA Draft EIR. Please refer to Chapter 3, *Corrections and Additions to the West Aircraft Maintenance Area Project Draft EIR*, of this Final EIR for text revisions.

WAMA-AL00004-6

Comment: 5. Section 4.4.3.1.2 Water Quality, Total Maximum Daily Load (TMDL) Program, Table 4.4-1, Adopted TMDL's for Santa Monica Bay and Table 4.4-2, Future TMDL Completion Schedule for Santa Monica Bay Offshore and Nearshore, pages 4.4-7 & 4.4-8; the information presented in Table 4.4-1 should be revised based on current status of TMDLs

and 303(d) listings for the Santa Monica Bay. A TMDL for Dichlorodiphenyltrichloroethane (DDT) and Polychlorinated Biphenyls (PCBs) that have already been developed (and in effect) and should be incorporated to Table 4.4-1. This current status of the TMDL also addresses the other two listings (fish advisory and sediment toxicity) as shown in Table 4.4-2 and Table 4.4-2 is obsolete.

Response: Tables 4.4-1 and 4.4-2 in Section 4.4.3.1.2, *Water Quality*, have been revised to reflect the adoption of TMDLs for DDT and PCBs, and the removal of fish advisory and sediment toxicity. These minor revisions do not invalidate the conclusions reached in the Draft EIR. Please refer to Chapter 3, *Corrections and Additions to the West Aircraft Maintenance Area Project Draft EIR*, of this Final EIR for text revisions.

WAMA-AL00004-7

Comment: For questions regarding the hydrology and water quality comments 2 through 5, please contact Mr. Youssef Chebabi of Watershed Management Division at (626) 458-4313 or ychebabi@dpw.lacounty.gov.

If you have any other questions or require additional information, please contact Ruben Cruz of Land Development Division at (626) 458-4910 or rcruz@dpw.lacounty.gov.

Response: Comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. Please see Responses to Comments WAMA-AL00004-2 through WAMA- WAMA-AL00004-6 above.

WAMA-AL00005 Sainz, Carmen **County of Los Angeles, Regional Planning Commission, Airport Land Use Commission** **11/20/2013**

WAMA-AL00005-1

Comment: Thank you for the opportunity to comment on the Notice of Availability (NOA) of a Draft Environmental Impact Report (DEIR) and Los Angeles International Airport (LAX) Plan Compliance Review of the West Aircraft Maintenance Area project for the consolidation, relocation, and modernization of existing aircraft maintenance facilities at LAX. Staff of the Los Angeles County Airport Land Use Commission (ALUC) has reviewed the documents you provided and has the following comments:

- In December 1991, the Los Angeles County Regional Planning Commission in its capacity as the ALUC adopted the Airport Land Use Plan (ALUP) for the county's fifteen public use airports. For each airport the ALUC adopted planning boundaries, also known as the airport influence area (AlA), within which certain proposed local actions must be submitted to the ALUC for review. Staff has determined that the subject property is located within the AlA for LAX.

- The proposed project is an implementation of the LAX Master Plan and is not a type of land use action which requires ALUC review as listed in Sections 1.5.1, 1.5.2 and 1.5.3 on pages 2-5 through 2-8 of the ALUC Review Procedures and therefore does not require review by the ALUC for an Airport Land Use Plan consistency determination.

If you have any questions, please contact David McDonald of my staff at (213) 974- 6425 or by email at dmcdonald@planning.lacounty.gov, Monday through Thursday between 7:30 a.m. and 5:30 p.m. Our offices are closed on Fridays.

Response: Thank you for your review. Your comments are noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process.

WAMA-AL00006 Chuang, James Southern California Gas Company 11/27/2013

WAMA-AL00006-1

Comment: Southern California Gas Company (SCG) appreciates the opportunity to review and respond to the Project's Draft Environmental Impact Report. We respectfully request that the following comments be incorporated in the subsequent Final Environmental Impact Report (FEIR).

SCG recommends that the FEIR include a discussion of activities associated with the relocation of existing service. At present, there is no mention of any existing facilities that would have to be relocated. This additional discussion should include:

- The presence and condition of existing utility infrastructure on the project site, including right-of-ways and/or easements.
- The number and description of any new natural gas facilities that will have to be constructed or installed, in order to provide natural gas service to the proposed project.
- Identification of any exiting natural gas infrastructure that would need to be relocated and/or abandoned, in order to provide natural gas service to the proposed project.
- Identification of any actions that would require permitting or acquisition of new right-of-way or easements for natural gas service to the project.

In addition, any environmental mitigation required for the potential impacts associated with the construction of gas service to the project should also be addressed as part of the responsibility of the "larger" West Aircraft Maintenance Area Project development project.

Once again, we appreciate the opportunity to comment on the DEIR. If you have any questions, please feel free to contact me at (213) 244-5817 or WCChuang@semprautilities.com.

Response: As indicated in Section 6.6, *Less Than Signficant Impacts*, in Chapter 6, *Other Environmental Considerations*, of the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project (WAMA) Draft EIR, the Initial Study (IS) analysis for the proposed Project (Appendix A of the WAMA Draft EIR) determined that the proposed Project would result in “not significant” or “less than significant” environmental impacts regarding utilities. However, following is a response to specific questions listed above:

Regarding including in the Final EIR relocation information related to existing gas facilities, the implementation of the proposed Project does not require the relocation of existing gas service. With respect to existing gas utilities at the Project site, the following infrastructure exists:

- An abandoned 4-inch gas line in the southeast part of the site, which will be removed as part of the Project.
- A 6-inch gas main in the northeast corner of the site near World Way West, which will be protected in place.
- There are no easements on the site for gas utilities.

Regarding any new natural gas facilities that will have to be constructed or installed in order to provide natural gas service to the proposed Project, there are no new gas facilities to be installed as part of the construction of aircraft parking apron and taxiway. Any potential new gas infrastructure and service could be required as part of the

development of the hangars, which will be designed and constructed by future tenants, and at this time the need for gas service, is unknown. That said, it is anticipated that a service connection would be from an existing gas line located in World Way West, and such connection would be coordinated with SCG as appropriate.

Regarding identifying actions that would require permitting or acquisition of right-of-way easements for gas service to the proposed Project, there is no need for permits or acquisition of right-of-way easements for gas service to the aircraft parking apron and taxiway areas, but it is anticipated that as part of the development of the hangars by future tenants there may be a need to obtain permits for providing gas service to the hangars. Obtaining gas service to the hangars will be pursued by the future tenants during development of the hangar(s), which will include permitting responsibility and coordination with SCG as appropriate.

Finally, as mentioned above, the IS analysis for the proposed Project determined that the proposed Project would result in "not significant" or "less than significant" environmental impacts regarding utilities; therefore, the analysis found no potential impacts associated with the construction of utilities or need for environmental mitigation. Implementation of the proposed Project (whether by the Los Angeles World Airports or future tenant) will be required to contact and coordinate with utility providers (such as SCE) during the construction and operation of the proposed Project, as appropriate.

WAMA-PC00001 Schneider, Denny and Acherman, Robert — Alliance for a Regional Solution to Airport Congestion (ARSAC) — 12/2/2013

WAMA-PC00001-1

Comment: ARSAC, the Alliance for a Regional Solution to Airport Congestion, provides these comments in response to the LAX West Aircraft Maintenance (WAMA) Draft EIR.

Response: Please see Responses to Comments WAMA-PC00001-2 through WAMA-PC00001-5 below.

WAMA-PC00001-2

Comment: ARSAC acknowledges that the Ground Run-up Enclosure (GRE) has been removed from the WAMA and that LAWA is considering a separate EIR for two GRE's. ARSAC remains concerned about the location of GRE's on the LAX airfield such that these GRE's do not increase aircraft noise in all communities surrounding LAX.

Response: As stated in Chapter 1, *Introduction and Executive Summary* of the LAX West Aircraft Maintenance Area Project (WAMA) Draft EIR, the Los Angeles World Airports (LAWA) has eliminated the placement of the GRE at the Project site and will conduct a separate airport-wide GRE siting study in the future to determine locations better suited for a GRE. The GRE siting study is contemplated to evaluate different types/designs of GREs, consider the nature, location, and intensity of ground run-up operations at LAX, especially relative to the location of noise-sensitive receptors (i.e., community areas) around the airport, and provide quantitative estimates of the ground run-up noise levels in nearby communities for conditions with and without the placement of GREs. Comment is noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process.

WAMA-PC00001-3

Comment: ARSAC appreciates the opportunity to provide input into future GRE locations. As we have expressed in person, LAWA should look at other airports for best practices for GRE's including the consideration of a fully enclosed hush house (Tokyo Narita Airport) into the range of alternatives for GRE's. Consideration of best practices at other world class airports would be in keeping with Mayor Garcetti's vision to have LAX as a "world class airport that is a first class neighbor." Since the WAMA will not have a GRE, ARSAC would like ground run-ups and Auxiliary Power Unit (APU's) operations to be prohibited at the WAMA.

Response: The airport-wide GRE siting study noted above will include consideration of fully enclosed GREs, such as that mentioned by the commenter. LAWA will work with stakeholders on development of the airport-wide GRE siting study. The commenter's suggestion that ground run-ups be prohibited at the WAMA site will be considered, although, as indicated in Section 4.5.6.2.1 of the WAMA Draft EIR, the changes in existing ground run-up community noise equivalent level (CNEL) values at noise-sensitive receptors with implementation of the proposed Project, without a GRE, are estimated to range from -0.1 decibels (dB) and 0.2 dB, which are well below the threshold of significance of a 1.5 dB increase in CNEL.

Please see Response to Comment WAMA-AL00001-13 regarding the suggestion that APU operations be prohibited at the WAMA site.

WAMA-PC00001-4

Comment: ARSAC is also concerned about LAWA's EIR process. Several times, LAWA publishes Notices of Preparation (NOP), Draft and Final Environmental Impact Reports/Statements or deadlines for comments to the same during the holidays (Christmas, Hanukkah, etc.) at the end of year. This holiday timeframe can limit or depress public participation. Also, the Open House, hosted by LAWA on the WAMA Draft EIR was held on the same night as the Neighborhood Council of Westchester/Playa del Rey board meeting and the LAX Coastal Chamber of Commerce "City of Angels" awards dinner. Again, the public lost out on an outstanding opportunity to ask LAWA staff and their consultants about many different aspects of the proposed WAMA project. Our Vice President Robert Acherman did attend the open house and had an excellent dialogue with LAWA staff and their consultants.

ARSAC also acknowledges that LAWA did extend the comment periods for both the NOP and the DEIR. ARSAC appreciates LAWA's voluntary extension of those deadlines.

Response: LAWA provides extensive opportunities for public participation in the EIR process. The public can provide comments on the NOP or Draft EIR through submitting comments at open houses/public meetings, online, and via mail. LAWA's practices in regards to public circulation of notices and documents as a matter of course meet, and in some cases exceed, CEQA requirements (CEQA Guidelines Sections 15103 and 15105).

Regarding the West Aircraft Maintenance Area Project NOP and NOA, the public review period did not extend into the December holiday season. The NOP public comment period began on September 14, 2012 and was extended through October 30, 2012, for a total of 45 days, rather than the 30 days required under CEQA. During this time a public scoping meeting was held on October 4, 2012. The WAMA Draft EIR public review period began on October 17, 2013 and closed on December 2, 2013 for a total of 45 days, in accordance with CEQA requirements. Although not a CEQA requirement, LAWA elected to hold a public workshop on November 5, 2013 during the comment period for the WAMA Draft EIR. While LAWA schedules such meetings with a priority for fostering public input and avoiding conflicts, it is difficult to avoid any and all conflicts with individuals who might want to attend. Nonetheless, LAWA went beyond CEQA requirements in holding the workshop and other means were available for submittal of comments on the Draft EIR during the public review period, both online and by mail.

WAMA-PC00001-5

Comment: ARSAC may submit additional comments in response to this Draft EIR. If you have any questions, then please contact us.

Response: Comment is noted. Please see Responses to Comment Letter WAMA-PC00002 for responses to additional comments submitted by ARSAC.

WAMA-PC00002 Schneider, Denny Alliance for a Regional Solution to Airport Congestion (ARSAC) 10/30/2012

WAMA-PC00002-1

Comment: We appreciate the opportunity to comment on this Notice of Preparation for the West Aircraft Maintenance Area (WAMA).

Response: Comments WAMA-PC00002-3 through WAMA-PC00002-15 provides comments on the Notice of Preparation (NOP) prepared for the proposed Project, which was released for public review on September 14, 2012 and went through October 30, 2012. All of these comments were considered prior to the preparation of the LAX West Aircraft Maintenance Area Project (WAMA) Draft EIR. Responses to these comments are provided below.

WAMA-PC00002-2

Comment: ARSAC strongly supports the modernization of LAX to improve the competitive position of the Southern California region and to maintain excellence in support of the customer airlines at LAX. With that in mind, we present these comments to ensure integrity in the project development and evaluation process.

Response: Comment is noted. Please see Responses to Comments WAMA-PC00002-3 through WAMA-PC00002-15 below.

WAMA-PC00002-3

Comment: We have a general concern about the integrity of the approval mechanisms in place by LAWA used for this and other projects in process at LAX. Each project environmental review is tiered to an Alternative D Master Plan EIR which does not contain or reference many of the elements of these projects. Alternative D Master Plan is so fragmented and convoluted by a lack of specificity that it provides neither a road map for future growth nor insight into what is being planned. It appears to be incremental expansion run amuck instead of effective planning.

Response: The relationship between the proposed Project and the Los Angeles International Airport (LAX) Master Plan is addressed in Section 4.6, *Land Use and Planning,* of the WAMA Draft EIR.

As required by Section 15125 of the California Environmental Quality Act (CEQA) Guidelines, the potential environmental impacts of each LAX project undergoing a CEQA analysis is assessed by examining the changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation was published. In compliance with CEQA, the baseline for the proposed Project was established with publication of the Notice of Preparation on September 14, 2012, though for certain issue areas (i.e., Section 4.2, *Greenhouse Gas Emissions*) where data specific to that timeframe were unavailable or incomplete, more current information was utilized to define the environmental baseline. The baseline for the Project was detailed in the existing environmental setting analysis of the Draft EIR (Chapter 3.0, *Overview of Project Setting*, of the WAMA Draft EIR).

In addition, pursuant to Section 15130 of the CEQA Guidelines, past, present and reasonably foreseeable future related projects, including LAX development projects (LAX Master Plan projects and other LAX projects) and non-LAX development projects that could, in conjunction with the proposed Project, result in cumulative impacts are analyzed

throughout the Draft EIR. A list of the related projects is provided in Chapter 3.0, *Overview of Project Setting*, of the WAMA Draft EIR, and a cumulative impacts analysis is provided for each resource area analyzed in the Draft EIR (Chapters 4.1 through 4.7 of the WAMA Draft EIR).

WAMA-PC00002-4

Comment: We ask that strict mitigation measures for the WAMA, especially the Ground Run-up Enclosure (GRE) area be identified to minimize noise and pollution including.
1. A fully enclosed GRE, or "hush house", such as that in use at Tokyo Narita Airport.
2. Ensure operating aircraft engine noise do not face El Segundo, Playa del Rey or Westchester.
3. Ensure use of ground electrical power so that aircraft do not have to use their APU's.
4. Install noise monitoring equipment, and clearly identify and enforce rules and penalties for noise violations in the maintenance area.
5. Validate a Contamination prevention plan and a response plan for WAMA structures and enforce penalties for contamination.
6. Provide filtering of all runoff and wastewater.

Response: Please see below in response to each of the points enumerated in the comment:

1. As indicated in Section 2, *Project Description,* of the WAMA Draft EIR, the proposed Project does not include a GRE. Section 4.5.6.2.1 of the WAMA Draft EIR details the changes in existing ground run-up community noise equivalent level (CNEL) values at noise-sensitive receptors with implementation of the proposed Project, without a GRE, are estimated to range from -0.1 decibel (dB) and 0.2 dB, which are well below the threshold of significance of a 1.5 dB increase in CNEL. As described further in Response to Comments PC00002-7 and PC00002-8 below, a parallel, and independent, airport-wide GRE siting study will be completed by the Los Angeles World Airports (LAWA) in the near future.

2. It is not possible to ensure that operating aircraft engine noise does not face El Segundo, Playa del Rey, or Westchester, or any other, particular areas because aircraft taxiing to and from the WAMA site, or taxiing anywhere at the airport, must be able to travel/turn in positions anywhere within 360 degrees. As detailed in Section 4.5.6.2.1 of the WAMA Draft EIR, the changes in existing ground run-up CNEL values at noise-sensitive receptors with implementation of the proposed Project are estimated to range from -0.1 dB and 0.2 dB, which are well below the threshold of significance of a 1.5 dB increase in CNEL; therefore, such a prohibition is not necessary.

3. Please see Response to Comment WAMA-AL00001-13 regarding the use of Auxiliary Power Units (APUs) at the WAMA site.

4. The same rules and enforcement will apply to the proposed Project as currently applies to the tenants that could reasonably be foreseen to relocate to the WAMA site or that apply to any other leasehold on the airport. The only noise restriction is regulated by the LAX Rules and Regulations, which establishes the curfew hours of 11:00 p.m. to 6:00 a.m. for run-ups, and applies to all areas of the airport. Enforcement is the responsibility of Airfield Operations, and noise monitoring equipment is not required for them to perform their responsibility in this area. As detailed in Section 4.5.6.2.1 of the WAMA Draft EIR, there are no significant environmental impacts associated aircraft engine run-ups at the WAMA site that warrant such mitigation. Notwithstanding, LAWA is willing to

include within the final design of the WAMA development plans the following Project Design Feature:

> ***WAMA-PDF-6 Automated Run-Up Monitoring System:*** *An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).*

5. Activities at LAX that involve hazardous materials/wastes are subject to numerous federal, state, and local requirements pertaining to safety, contamination prevention, and emergency response. Section 4.3, *Hazards and Hazardous Materials,* in the WAMA Draft EIR addresses such issues as related to the proposed Project. As detailed in Section 4.3.5, *Applicable LAX Master Plan Commitments and Mitigation Measures*, as part of the LAX Master Plan, two commitments (HM-1 Ensure Continued Implementation of Existing Remediation Efforts and HM-2 Handling of Contaminated Materials Encountered During Construction) pertaining to hazards and hazardous materials were adopted by the LAX Master Plan's Mitigation Monitoring Reporting Program and will be followed as part of the proposed Project. As it relates to the discovery of unknown contamination during construction, the Procedure (that facilitates implementation of LAX Master Plan Commitment HM-2) provides detailed guidance for projects involving excavation and grading of soils. The Procedure requires the preparation of detailed plans for handling previously unknown contaminated soil encountered during construction, as well as spills of hazardous materials or substances that may occur during construction. It also requires preparation of a detailed Health and Safety Plan, and provisions for testing and segregation of contaminated soils for proper disposal. Therefore, the proposed Project would result in less than significant impacts with respect to unknown contamination.

6. Section 4.4, *Hydrology and Water Quality,* in the WAMA Draft EIR addresses the requirements related to surface water quality and wastewater discharge. As detailed in Section 4.4.6, *Impact Analysis*, the proposed Project includes development of stormwater drainage/water quality improvements, and implementation of the water quality best management practices (BMPs) (as listed under Section 4.4.6). One of the BMPs proposed for the Project includes a detention/infiltration basin, which would manage peak stormwater runoff flows from the Project site, as well as provide an infiltration system that includes a pre-screening unit, hydrodynamic separators, and StormTrap as the primarily infiltration mechanism. In addition, the proposed Project includes a water recycling system that utilizes recycled water and a portion of the first-flush stormwater runoff for operation of the proposed aircraft wash rack, with non-returnable product to be conveyed to the sanitary sewer system for disposal (under an industrial waste permit from the City's Industrial Waste Division) and returnable wash water from the wash-rack and the portion of the first-flush stormwater runoff that exceeds the holding capacity of the recycling system diverted into an oil-water separator prior to either re-use or discharge to the sanitary sewer system.

WAMA-PC00002-5

Comment: Are the proposed WAMA facilities to replace existing maintenance facilities? If so, which ones? Who will be the tenants? Will the WAMA be under exclusive leases (e.g. to one airline or group of airlines)?

Response: It is currently anticipated that, in conjunction with the removal of the former TWA Hangar, the existing tenant of that facility – Qantas airlines – would relocate to the WAMA site. For the purposes of the WAMA Draft EIR analysis, it was assumed that maintenance operations at the existing US Airways hangar would also relocate to the WAMA site. The specifics of any lease arrangements related to the WAMA site have not yet been determined.

WAMA-PC00002-6

Comment: What other locations did LAWA consider for WAMA? Why were those locations rejected? How does this integrate with the cross field taxiways R and S and their build/repair schedule?

Response: Section 5, *Alternatives,* of the WAMA Draft EIR describes the other locations considered for the WAMA facilities and the reasons why those alternative sites did not meet Project Objectives. The construction of Taxiway R and Taxiway S was completed in May 2010 and November 2011, respectively and, being recently constructed, are not anticipated to be under repair during construction of the Project. Further, they do not affect the alternatives for the Project.

WAMA-PC00002-7

Comment: Under the Noise Variance issued by the California Department of Transportation (CalTrans), LAWA is obligated to install three GRE by 2015. Will LAWA incorporate its noise variance obligations into the EIR for the WAMA to show how this will be met? What are the locations LAWA planned for the second and third GRE?

Response: There is no requirement to install three GREs at LAX by 2015. The existing Noise Variance issued by the California Department of Transportation on January 14, 2011 (Case No. L2020041216) stipulates that LAX shall design two ground run-up enclosures within five years following the effective date of the variance. The Noise Variance and GRE obligations are not associated with, or part of, the proposed Project, nor required as mitigation, and, therefore, not addressed in the WAMA Draft EIR. The locations of the two GREs will be identified in the future in a parallel, separate, and independent, airport-wide GRE siting study to be completed by LAWA.

WAMA-PC00002-8

Comment: Engine run-ups generate loud bursts of jet noise audible in El Segundo, Westchester and Playa del Rey. Will LAWA add fully enclosed Ground Run-up Enclosure (GRE) similar to the fully enclosed hangar GRE in use at Tokyo Narita Airport (NRT)? Please compare the noise suppression abilities of a fully enclosed GRE versus the LAWA proposed GRE.

Response: As described on pages 1-1 and 1-2 in Section 1.1, of the WAMA Draft EIR, subsequent to the release of the Initial Study/NOP refinements were made to certain Project components, including the elimination of the GRE. LAWA will conduct a separate airport-wide GRE siting study to determine alternative locations for a GRE. The WAMA Draft EIR did address potential noise impacts from ground run-up activity in Chapter 4.5, *Noise*. Specifically, as analyzed on page 4.5-25, such activity would result in little to no change compared to existing noise conditions and therefore was determined to be less than significant. Therefore, no additional analysis is warranted.

Notwithstanding the above, the airport-wide GRE siting study to be completed by LAWA will include consideration of various GRE configurations, including a fully-enclosed GRE.

WAMA-PC00002-9

Comment: The Continental Airlines hangar site is known to be contaminated. This is the same location used to prepare the Space Shuttle Endeavour for its journey across

Westchester, Inglewood and South Los Angeles to its final home at the California Science Center. What are the containments at this location? What is LAWA doing to clean-up the containments? Will any of the containments used at the Continental hangar also be used at WAMA? What mitigation measures will LAWA put in place at WAMA to prevent similar contamination? What construction techniques, operational procedures and safety training will be used to prevent contamination? What are the emergency spill response plans?

Response: Contamination from the former Continental Airlines hangar site was addressed in Chapter 4.3, *Hazards and Hazardous Materials,* of the WAMA Draft EIR under Section 4.3.3.2.2. The contaminant of concern at this location is a subsurface jet fuel plume originated from leaking fuel hydrant lines, underground storage tanks (USTs), and fuel distribution lines at the former Continental Airlines (ACMX) facility. Currently, a full-scale vacuum-enhanced free product system (VEFPR) is in place to remove recoverable jet fuel from beneath the former Continental Airlines ACMX facility to the maximum extent practicable. As confirmed in the most recent VEFPR semi-annual report, the lateral extent of the jet plume is stable and does not encroach into the Project site. Thus, no Project-specific mitigation measures are required to address the jet fuel plume. No fuel storage would occur on the Project site, although fuel dispensing could occur on the apron area of the Project site. If a spill were to occur, emergency response procedures would be implemented to contain and clean up the spill. Maintenance operations on the Project site would be required to follow the regulations set forth in U.S. Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act, federal Occupational Safety and Health Act, federal and State UST regulations and Los Angeles Fire Department regulations, which encompass storage and handling of hazardous materials, worker training, and emergency response. These regulations are described in Subsection 4.3.3.1, *Regulatory Context*, of the WAMA Draft EIR. In addition, the existing LAWA Stormwater Pollutant Prevention Plan includes measures to prevent spills and respond to spills that do occur. Therefore, the WAMA Draft EIR determined that impacts regarding the handling of hazardous materials would be less than significant.

WAMA-PC00002-10

Comment: In the proposed site plan, there is a proposed storm water collector along the western edge of the site. In aircraft maintenance operations, many hazardous substances are used, including, but not limited to, aviation kerosene, oils, lubricants, solvents and paints. Will LAWA filter all wastewater and all storm runoff water to prevent soil and water contamination?

Response: Please see Response to Comment WAMA-PC00002-9 regarding the handling of hazardous materials. Dry weather and stormwater runoff and water quality impacts were addressed in Chapter 4.4, *Hydrology and Water Quality,* of the WAMA Draft EIR under the headings Operation – Wet Weather Pollutant Loads, and Operation – Dry Weather Pollutant Loads. In accordance with LAX Master Plan Commitment HWQ-1, Conceptual Drainage Plan, and applicable regulations, the proposed Project would incorporate site-specific BMPs into a Project-specific Standard Urban Stormwater Management Plan (SUSMP) during the design phase of the proposed Project. Preliminary BMPs identified in the proposed Project's Drainage Design Report include a detention/infiltration basin, oil-water separators, media filters, a water recycling system, porous pavement, and hangar roof drains. For the proposed Project, BMPs also include dedicated connections to the sanitary sewer system at the proposed wash rack. Wastewater from the wash rack would be treated at the Hyperion Treatment Plant. Additional measures may also include but are not necessarily limited to drain inserts/water quality inlets in combination with the media filters, or other equivalent measures, as determined adequate by the Los Angeles Bureau of Sanitation in the final SUSMP. All BMPs would be required to be

designed in accordance with the LAWA Design and Construction Handbook, which requires projects to be in compliance with the City's Low Impact Development Ordinance and includes technical approaches and BMPs to reduce stormwater pollutants in first-flush flows. Since the proposed Project would implement Project-specific BMPs in a SUSMP that serve to avoid a net increase in pollutant loading, it is not anticipated that the proposed Project would result in additional dry-weather and stormwater pollutant loading. Therefore, wastewater and stormwater runoff would be filtered or otherwise treated and water quality impacts would be less than significant.

WAMA-PC00002-11

Comment: What will be the hours of operation of the hangars? What types of work will be performed and during what time frames during a 24 hour day?

Response: Hours of operation and operational aircraft assumptions of the aircraft maintenance hangars are described in Sections 2.5.3 and 4.5.6.2.2, of the WAMA Draft EIR. As described on pages 4.5-26 and 4.5-31, of the WAMA Draft EIR, activities during the hours of 7:00 a.m. to 7:00 p.m. would involve 13 aircraft movements and include aircraft parking and servicing/light maintenance checks. Activities during the hours of 7:00 p.m. to 7:00 a.m. would involve 13 aircraft movements and include aircraft parking and servicing/light maintenance checks. Aircraft traveling to and from the Project site would mostly be towed, but some aircraft may be under power. In addition, approximately 60 run-ups annually (5 monthly) would occur at the Project site.

Also LAWA has added, as Project Design Features (PDFs), various use restrictions and additional design elements to the WAMA project. Such applicable design features include the following:

> ***WAMA-PDF-1 Quarterly Reporting****: The tenants of the WAMA site will be required to provide to LAWA a quarterly report indicating the number, time of day, duration, and specific aircraft type of all aircraft engine high-power and low-power ground run-ups conducted during the reporting period. This reporting requirement shall also extend to any airline using the WAMA site for ground run-ups as shall be monitored by LAWA Airfield Operations. The completeness and accuracy of the report shall be attested to by a company official of the tenant.*
>
> *In conjunction with application of a ground run-up reporting program, LAWA will develop a tiered penalty program applicable to violations of the LAX nighttime curfew for aircraft engine high-power ground run-ups. The penalty structure will be modeled after policies seen at other similarly situated airports (e.g., Seattle Tacoma International Airport). An example of the penalty structure includes: a Letter of Admonishment for first offense within a one year period and fines for second, third and additional offences within a one year period. It is anticipated that LAWA's development of a financial penalty program, to the extent allowed by law, will be tiered, whereby the amount of financial penalty is progressively higher for each recurring violation, with a substantial increase in penalty amounts for repeat violations that occur within a short amount of time.*
>
> ***WAMA-PDF-2 APU Usage While Aircraft is Parked:*** *Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are available, with the exceptions being: (1) if an APU is being serviced or checked relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way*

West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.

WAMA-PDF-3 Aircraft Taxiing: *All aircraft traveling to or from WAMA during nighttime hours (11:00 p.m. to 6:00 a.m.) must be tugged/towed and are not allowed to taxi under own power, unless otherwise directed by LAWA Airport Operations in situation-specific circumstances where taxiing is required to maintain airfield safety and efficiency.*

WAMA-PDF-4 Aircraft Engine Ground Run-Ups: *Aircraft engine high-power ground run-ups of any duration and low-power run-ups of five minutes or more can only occur at the onsite blast fence; and, all run-ups (high-power and low-power of any duration) are prohibited anywhere on the WAMA site between 11:00 p.m. and 6:00 a.m.*

WAMA-PDF-5 Use of the WAMA Site: *Aircraft parking spaces at WAMA site cannot be used for passenger boarding or deplaning (i.e., cannot be used as remote gates), except during or as a result of emergency circumstances.*

WAMA-PDF-6 Automated Run-Up Monitoring System: *An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).*

WAMA-PC00002-12

Comment: In the LAX Master Plan and the LAX Coalition settlement agreements, LAWA committed to gate electrification at the passenger terminals and cargo areas. Will the hangars, adjoining ramp area and GRE be supplied with ground electrical power? Has LAWA completed gate electrification at all LAX terminals? If not, when will the gate electrification work be completed? Please provide a list of gates electrified. Has LAWA completed ground power outlets at all LAX cargo terminals? If not, when will the cargo electrification work be completed? Please provide a list of cargo ramp spaces electrified. Has LAWA completed ground power outlets at all LAX maintenance? If not, when will the maintenance area electrification work be completed? Please provide a list of maintenance area spaces electrified.

Response: As stated in Section 2.5.4, of the WAMA Draft EIR, remain overnight (RON)/remain all day (RAD) kits that include hook-ups for 400 Hertz ground power, ground support equipment charging stations, preconditioned air, and potable water are proposed at the aircraft parking positions at the west end of the apron, which will allow full aircraft functionality without running auxiliary power units. Additionally, the proposed hangars will include ground power hook-ups. The remaining questions in the comment do not pertain to the Project and therefore no response is required for the WAMA Final EIR.

WAMA-PC00002-13

Comment: We are concerned about ingress and egress. Ground traffic ingress and egress for the proposed site plan shows an entrance and exit to the hangar parking lot where traffic going north on Pershing Drive dumps onto World Way West. Traffic extends south on Pershing Drive and exiting on World Way West also dumps into the traffic merging from Pershing North. How will traffic going south on Pershing and exiting on World Way West safely access the hangar parking lot? The exit from the WAMA parking lot appears to force drivers to continue east on World Way West and then proceed to some point to turnaround to go west again. Where will this turnaround point be located? Will drivers

be able to immediately turn left out of the WAMA parking lot? Will the entrance to the proposed WAMA parking be placed before or behind the existing vehicle checkpoint on World Way West?

Response: Vehicle access to and from the WAMA site will occur via World Way West at approximately the same location where access is, and has been for many years, provided for construction staging activities. Drivers traveling to the WAMA site from northbound or southbound Pershing Drive would transition onto World Way West and turn right into the site. Drivers exiting the WAMA site to get back to Pershing Drive would turn left directly onto World Way West. The existing vehicle checkpoint on World Way West is transitory in nature and its location can be shifted as necessary. Whether the vehicle checkpoint will be located before or after the WAMA vehicle access point will be determined in coordination with LAWA Airport Police and LAWA Operations.

WAMA-PC00002-14

Comment: How will lighting in this area be controlled? Considering that the proposed project site is near an active runway, what measures has LAWA considered to prevent lighting from distracting pilots landing, taxiing or taking off on the south runways? In westerly operations? In easterly operations? In over-ocean operations? How will LAWA conceal lighting in this area from radiating out to residences in El Segundo, Playa del Rey and Westchester?

Response: The potential for lighting impacts on aircraft operations and nearby residences was addressed in Section I.d, pages 3-5 through 3-7, of the Initial Study and included in Appendix A of the WAMA Draft EIR. As explained therein, the lighting that would be installed is to illuminate the aircraft parking positions, taxiway edge, parking lot, aircraft hangars, and perimeter areas. However, such lighting would be directed downward toward the immediate area of the Project site and would not result in light spillover at the nearest residential uses to the south in El Segundo and to the north in the community of Playa del Rey. Regarding lighting that is distracting to pilots during aircraft operations, the proposed lighting would be in compliance with applicable Federal Aviation Administration standards and relevant LAWA light and glare guidelines. Furthermore, Project compliance with LAX Master Plan Commitment LI-3, Lighting Controls, which requires LAWA to review lighting plans, would ensure that the proposed lighting would not interfere with pilot operations.

WAMA-PC00002-15

Comment: Is the proposed WAMA site home to any endangered species such as the El Segundo Blue Butterfly or the Riverside Fairy Shrimp? Are there other plants, animals, insects or organisms likely to be affected by the proposed project?

Response: The potential for impacts on endangered species, was addressed in Sections IV.a-b,e, pages 3-9 through 3-12, of the Initial Study (included in Appendix A of the WAMA Draft EIR) and Section 6.5 of Chapter 6, *Other Environmental Considerations*, of the WAMA Draft EIR. As stated in the Initial Study, the Project site is graded, highly disturbed, and largely devoid of vegetation other than some small ruderal weedy areas. Based on a review of various biological resources data, there are no known sensitive species on the Project site. Although Riverside Fairy shrimp cysts were removed from the Project site in 2005 pursuant to LAX Master Plan Mitigation Measure LU-8 and 2004 and 2005 Biological Opinions from the USFWS, habitat assessments conducted in 2011 detected no ponded areas that could support fairy shrimp. The Project site is located across Pershing Drive from the El Segundo Blue Butterfly Habitat Restoration Area, which is habitat to the El Segundo Blue Butterfly. Although the Project would generate dust,

light/glare, and noise which would be perceptible from the Habitat Restoration Area, these would be similar to what is currently occurring from existing construction activities at the Project site. Furthermore, existing LAX Master Plan commitments and mitigation measures would minimize dust, light/glare, and noise effects within the Habitat Restoration Area.

As discussed on pages 6-5 through 6-7 in Chapter 6, *Other Environmental Considerations,* of the WAMA Draft EIR, focused surveys for the California gnatcatcher were conducted from April 16 through May 22, 2013, within the coastal sand dune habitat west of Pershing Drive and west of the Project site. Although California gnatcatchers were observed within the survey area, the Project site is largely unvegetated and therefore does not contain habitat suitable for the California gnatcatcher. Furthermore, indirect impacts on the California gnatcatcher from implementation of the Project are not anticipated to occur, since the El Segundo dune area is already subject to high noise levels and high-intensity lighting and LAX Master Plan commitments and mitigation measures would further reduce dust, light/glare, and noise effects within the El Segundo dune area.

Regarding other plants, animals, insects or organisms likely to be affected by the proposed Project, impacts on common species are not considered to be significant under CEQA and therefore were not evaluated in the WAMA Draft EIR.

WAMA-PC00003 PANATAG 11/3/2013

WAMA-PC00003-1

Comment: PANATAG SOLUTIONS of our authority due various cases of human rights violations.public notices station in down town areas all over the province [sic]

Response: No further response is required because the comment does not raise any environmental issues or address the adequacy of the environmental analysis included in the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project (WAMA) Draft EIR. Comment is noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process.

WAMA-PC00004 Bowen, Eve **11/15/2013**

WAMA-PC00004-1

Comment: In regards to the West Aircraft Maintenance Area Project, this area was designated for golf course, parks and public usage in the 1960s and 70s.

At that time our newer southernmost homes on that beautiful beach front were taken, cutting our Playa del Rey community in half. Many promises were broken and this area became a wasteland fenced off by LAX.

Many residents relocated to the older north end. Our lovely beach community was here much before the airport, then located east of Sepulveda. Now our fractured community is once again being threatened by the airport; more noise by reving [sic] up engines along with more pollution! Stop destroying any beautiful nature left in our bereft city and leave something for the next generation.

How far will LAWA go before it takes the entire city? There is so little natural space left as it is!

Response: The information regarding prior events near the Los Angeles International Airport (LAX) and actions taken by the Los Angeles World Airports (LAWA) is not related to the Project, as the Project site has been used for airport related activities for decades**.** As described in Section 6.5 of Chapter 6, *Other Environmental Considerations*, of the LAX West Aircraft Maintenance Area Project (WAMA) Draft EIR, the Project site does not include natural areas and is largely unvegetated and used as a construction staging area. In addition, the Project site is within the LAX perimeter fence and airside consistent with land use designations. The WAMA Draft EIR addresses noise impacts in Chapter 4.5, *Noise*; and pollution in Chapter 4.1, *Air Quality,* and Chapter 4.2, *Greenhouse Gas Emissions*. Supporting technical data and analysis are provided in Appendix B and Appendix C of the WAMA Draft EIR. Specifically regarding the revving of engines or ground run-up activity, and as analyzed on page 4.5-25 in Chapter 4.5, *Noise,* of the WAMA Draft EIR, such activity would result in little to no change compared to existing noise conditions and therefore impacts were determined to be less than significant. Comment is noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process.

WAMA-PC00004-2

Comment: Move all maintenance facilities out to an open location & help to preserve these areas as God made them. Thank you. (a resident since 1958.) Eve Bowen

Response: Regarding the location of the maintenance facilities, as described in Section 2.3 of Chapter 2, *Project Description*, of the WAMA Draft EIR, the proposed Project is consistent with existing land use designations and is sited to efficiently serve aircraft at LAX in proximity to runways and taxiways. Please see Response to Comment WAMA-PC00002-6 regarding other locations for the proposed maintenance facilities considered by LAWA. As stated in Response to Comment WAMA-PC00002-15, the Project site is graded, highly disturbed and largely devoid of vegetation, and within the LAX perimeter fence and airside consistent with land use designations.

WAMA-PC00005 Roys, Tommy 11/5/2013

WAMA-PC00005-1

Comment: Is an 'Aircraft Maintenance Project' the best use of airport funds? Shouldn't the terminals come first? Or the crumbling upper roadway?

Response: Comment is noted and will be forwarded to the decision makers for review and consideration as part of the decision-making process. The LAX West Aircraft Maintenance Area Project (WAMA) is proposed and necessary for the reasons stated in Section 2.4 of Chapter 2, Project Description, of the WAMA Draft Environmental Impact Report (EIR), which include: consolidating, relocating, and modernizing certain existing aircraft maintenance facilities at the Los Angeles International Airport (LAX) and providing more efficient and effective maintenance of existing aircraft at the airport. The proposed Project is not precluding other improvements underway and pending at LAX, including terminal and roadway improvements. On-airport projects underway and planned are described in Chapter 3, Overview of Project Setting, and listed on Table 3-1, On-Airport Related Projects, of the WAMA Draft EIR. These projects include remaining work at Tom Bradley International Terminal (Related Project #3); north and south terminal improvements (Related Projects #5 and #6); miscellaneous projects and improvements that include Central Terminal Area (CTA) second level roadway repairs (Related Project #9); and LAX Master Plan Alternative D/Specific Plan Amendment Study (SPAS) Development Alternative 3 terminal, ground access, and roadway improvements (Related Project #11).

WAMA-PC00005-2

Comment: Your charts show 'no increase in flights or passengers' yet I was told this is needed to allow room for all the planes that want to come in but can't. Due not enough room [sic].

Response: As described in Section 2.5.1 of Chapter 2, *Project Description*, of the WAMA Draft EIR, the proposed Project would not increase passenger or gate capacity and would not increase flights and/or aircraft operations at LAX. The proposed facilities would serve aircraft that would be at LAX in conjunction with regularly scheduled flights or other business matters, whereby aircraft maintenance and/or parking would be ancillary to the primary reason why the aircraft is at the airport. Similarly, the proposed Project would consolidate functions and services that already occur elsewhere at the airport. This consolidation of existing remain overnight (RON)/remain all day (RAD) and aircraft maintenance activities is not anticipated to result in an increase in flight or passenger activities at LAX. As stated in Section 2.1 of the WAMA Draft EIR, the Project would allow for more efficient and effective maintenance of existing aircraft at the airport, including Airplane Design Group (ADG) VI aircraft (Airbus A380s and Boeing 747-8s). For futher discussion of this issue, please see Response to Comment WAMA-AL00001-37.

WAMA-PC00005-3

Comment: LAX <u>is</u> to increase planes & passengers!
This is a major contradiction!

Response: Please see Response to Comment WAMA-PC00005-2 above.

3. CORRECTIONS AND ADDITIONS TO THE DRAFT EIR

3.1 Introduction

As provided in Section 15088(d) of the California Environmental Quality Act Guidelines, responses to comments may take the form of a revision to a Draft Environmental Impact Report (EIR) or may be a separate section in the Final EIR. This chapter complies with the latter of these two guidelines and provides changes as a result of clarifications to, and comments received on, the Draft EIR for the West Aircraft Maintenance Area Project (WAMA or the proposed Project). The following revisions are hereby made to the text of the Draft EIR. Changes in text are signified by ~~strikeouts~~ where text is removed and shown with underline where text is added, unless otherwise noted. These changes do not add significant new information to the EIR, nor do they disclose or suggest new or more severe significant environmental impacts of the proposed Project.

3.2 Corrections and Additions to the Draft EIR Text

The following changes to the text as presented below are incorporated into the Final EIR:

Chapter 1, Introduction/Executive Summary

Revise Table 1-1, under Air Quality, *Air Quality-Construction (Significant Unavoidable - temporary)*, under column "**New Mitigation Measures,**" as follows:

~~No New Feasible Mitigation Identified~~

Mitigation Measure MM-AQ (WAMA)-1

Chapter 2, Project Description

Add a new section under Section 2.5, Project Characteristics, as follows:

2.5.5 Project Design Features

The following Project Design Features (PDFs), WAMA-PDF-1 through WAMA-PDF-7, are Project elements that LAWA has voluntarily chosen to require the tenants of the WAMA site to abide by, as part of operation of the proposed Project. The PDFs are included to address community concerns and are not triggered or warranted by any significant impacts of the WAMA project (i.e., are not mitigation measures). Notwithstanding, the design elements described below will be made requirements as part implementation of the proposed Project and will be included in the Project Design Features, Commitments, and Mitigation Monitoring and Reporting Program as a means to confirm they have been included in the operation of the WAMA site.

> ***WAMA-PDF-1 Quarterly Reporting:*** *The tenants of the WAMA site will be required to provide to LAWA a quarterly report indicating the number, time of day, duration, and specific aircraft type of all aircraft engine high-power and low-power ground run-ups conducted during the reporting period. This reporting requirement shall also extend to any airline using the WAMA site for ground run-ups as shall be monitored by LAWA Airfield Operations. The completeness and accuracy of the report shall be attested to by a company official of the tenant.*

In conjunction with application of a ground run-up reporting program, LAWA will develop a tiered penalty program applicable to violations of the LAX nighttime curfew for aircraft engine high-power ground run-ups. The penalty structure will be modeled after policies seen at other similarly situated airports (e.g., Seattle Tacoma International Airport). An example of the penalty structure includes: a Letter of Admonishment for first offense within a one year period and fines for second, third and additional offences within a one year period. It is anticipated that LAWA's development of a financial penalty program, to the extent allowed by law, will be tiered, whereby the amount of financial penalty is progressively higher for each recurring violation, with a substantial increase in penalty amounts for repeat violations that occur within a short amount of time.

***WAMA-PDF-2 APU Usage While Aircraft is Parked**: Aircraft parked at the WAMA site shall not utilize on-board auxiliary power units (APUs) for aircraft electrical power or interior cooling at parking spaces where ground power and preconditioned air are available, with the exceptions being: (1) if an APU is being serviced or checked relative to those functions; or (2) for some limited time if APU is required to tug/tow aircraft to/from WAMA site (i.e., for proper operation of essential on-board electronics while being moved). In addition to the proposed RON kits with ground power and preconditioned air for aircraft parking positions along the perimeter of the site (i.e., at hangar areas along World Way West and RON/RAD positions along Pershing Drive), the final WAMA site design will include additional aircraft ground power connect ports at the two interior RON/RAD positions within the site.*

***WAMA-PDF-3 Aircraft Taxiing:** All aircraft traveling to or from WAMA during nighttime hours (11:00 p.m. to 6:00 a.m.) must be tugged/towed and are not allowed to taxi under own power, unless otherwise directed by LAWA Airport Operations in situation-specific circumstances where taxiing is required to maintain airfield safety and efficiency.*

***WAMA-PDF-4 Aircraft Engine Ground Run-Ups:** Aircraft engine high-power ground run-ups of any duration and low-power run-ups of five minutes or more can only occur at the onsite blast fence; and, all run-ups (high-power and low-power of any duration) are prohibited anywhere on the WAMA site between 11:00 p.m. and 6:00 a.m.*

***WAMA-PDF-5 Use of the WAMA Site:** Aircraft parking spaces at WAMA site cannot be used for passenger boarding or deplaning (i.e., cannot be used as remote gates), except during or as a result of emergency circumstances.*

***WAMA-PDF-6 Automated Run-Up Monitoring System:** An aircraft engine ground run-up monitoring system, including a sound level meter and video camera, will be provided at the run-up area. LAWA will make all reasonable efforts to make data from the monitoring system accessible to the public via an internet link provided on LAWA's website (i.e., lawa.org).*

***WAMA-PDF-7 Resurfacing a Portion of Imperial Highway:** LAWA will work with City of Los Angeles Bureau of Street Services (LABSS) to contribute its reasonable allocable share subject to FAA approval toward resurfacing of Imperial within the City of Los Angeles's jurisdiction; if the LABSS undertakes this resurfacing project, LAWA will also work with LABSS and the Council District 11 office to schedule resurfacing work. LAWA commits to meetings with Caltrans (alongside the City of El Segundo) to discuss improvements to areas under Caltrans control but cannot make any guarantees as to Caltrans' actions.*

Revise Section 2.9.1 as follows:

2.9.1 Federal Actions

- FAA approval of an amended/updated Airport Layout Plan for LAX, which will reflect the improvements associated with the proposed Project, and other related approvals, for which the FAA will complete the necessary environmental review pursuant to the National Environmental Policy Act (NEPA).

4.1 Air Quality

A Project-specific Mitigation Measure is being added to strengthen LAX Master Plan Commitment LAX-AQ-2, LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures, measure number "2o" in Table 4.1-8 (under Section 4.1.5, Applicable LAX Master Plan Commitments and Mitigation Measures). Revisions to Section 4.1.8, Mitigation Measures, are as follows:

4.1.8 Mitigation Measures

LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and has established some of the most aggressive construction emissions reduction measures in southern California, particularly with regard to requiring construction equipment to be equipped with emissions control devices. The air quality control measures set forth by LAWA for development projects at LAX take into account LAX Master Plan commitments and mitigation measures, Community Benefits Agreement and Stipulated Settlement measures, and measures identified in EIRs for other projects at LAX. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with a Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed Project to implement a number of measures that would reduce criteria pollutant and greenhouse gas emissions. ~~LAWA has not identified any additional feasible mitigation measures that could be adopted at this time. Therefore, no additional Project-specific mitigation measures are recommended in connection with the proposed Project.~~ Based on discussions with the SCAQMD, LAWA has agreed to add a Project-specific mitigation measure that would be incorporated into bid documents for this Project language specifying that contractors should use equipment on the Project that meets the most stringent emission requirements. Because it is difficult for LAWA to determine whether equipment is available that meet the most stringent emission requirements, for purposes of this analysis, LAWA has kept the equipment mix specified in the Draft EIR, but will require contractors to use equipment that meets stricter standards if available.

The following Project-specific mitigation measure will supersede the construction-related air quality control measure "2o" under LAX-AQ-2, LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures:

- **MM-AQ (WAMA)-1.** On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2010 on-road emissions standards for PM10 and NOX. Contractor requirements to utilize such on-road haul trucks or the next cleanest vehicle available will be subject to the provisions of LAWA Air Quality Control Measure 2"x" (part of LAX Master Plan Commitment LAX-AQ-2, LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures). All off-road diesel-powered construction equipment greater than 50 horsepower shall meet, at a minimum, USEPA Tier 3 off-road emission standards. In addition, all off-road diesel-powered construction equipment greater than 50 hp with engines meeting USEPA Tier 3 off-road emission standards shall be retrofitted with a CARB-verified Level 3 Diesel Emissions Control Strategies (DECS). Any emissions control device used by the Contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In the event the Contractor is using off-road diesel-powered construction equipment with engines meeting USEPA Tier 4 off-road emission standards and is already supplied with a factory-equipped diesel particulate filter, no retrofitting with DECS is required. Contractor requirements to utilize Tier 3 equipment or next cleanest equipment available will be subject to the provisions of LAWA Air Quality Control Measure 2"x" (part of LAX Master Plan Commitment LAX-AQ-2, LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures). LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.

4.1.9 Level of Significance After Mitigation

Even with incorporation of feasible construction-related control measures as described above in Section 4.1.5 and Section 4.1.8, the maximum peak daily construction-related regional mass emissions resulting from the proposed Project would be significant for NOX during the initial and middle stages of proposed Project construction, as shown by the emissions inventory. LAWA has not identified any additional feasible mitigation measures that could be adopted at this time to further reduce this impact to below significance.

Dispersion modeling demonstrates that Project construction-related airborne concentrations would remain below the most stringent ambient air quality standards. The HHRA conducted for construction impacts indicates that health risks would be less than the risk thresholds. Operational emissions for all criteria pollutants and precursors are below applicable mass thresholds, resulting in less than significant impacts.

4.2 Greenhouse Gas Emissions

As discussed under heading 4.1, Air Quality, MM-AQ (WAMA)-1 will supersede the construction-related air quality control measure "2o" under LAX-AQ-2, LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures in Table 4.2-5 (under Section 4.2.5, Applicable LAX Master Plan Commitments and Mitigation Measures).

4.4. Hydrology and Water Quality

Revise the following sections of Section 4.4, Hydrology and Water Quality, as follows:

4.4.2.2 Methodology – Water Quality

Potential pollutant loads can be associated with two types of surface water runoff; wet weather flows (e.g., flows from stormwater runoff flowing over impervious urban uses) and dry weather flows (e.g., flows associated with non-stormwater surface runoff from areas treated with fertilizers and herbicides, potential spills of hazardous materials, and the outdoor washing of motor vehicles, aircraft, etc.). Within this section, potential pollutant loads associated with surface water flows are addressed qualitatively by characterizing the practices that can contribute to these flows and describing measures proposed to reduce pollutants in such flows. The pollutants of concern associated with wet weather flow (i.e., stormwater runoff) are evaluated and based upon ~~studies of~~ pollutants of concern identified for the Santa Monica Bay, the primary receiving water body for runoff from LAX~~, including~~. The primary study utilized to identify pollutants of concern for the Santa Monica Bay is the Los Angeles Regional Water Quality Control Board's (LARWQCB) Water Quality Control Plan for the Los Angeles Region (Basin Plan). Additional studies utilized to gain an understanding of water quality concerns for the Santa Monica Bay include the Characterization Study of the Santa Monica Bay Restoration Plan - State of the Bay 1993, and the Santa Monica Bay Restoration Commission's (SMBRC) Santa Monica Bay Restoration Plan in 2008. The LARWQCB has approved as amendments to the Basin Plans, Total Maximum Daily Loads (TMDLs) for the following wet weather pollutants of concern: nearshore debris and bacteria. In addition, the US Environmental Protection Agency (EPA) has approved TMDLs for dichlorodiphenyltrichloroethane (DDT) and polychlorinated biphenyls (PCBs). ~~These studies identified 19 pollutants of concern for the Santa Monica Bay. Thirteen of these pollutants were selected for analysis based on the reasonable likelihood that they would be present in stormwater runoff from LAX and the Project site, including total suspended solids, phosphorus, total Kjeldahl nitrogen, copper, lead, zinc, oil and grease, biochemical oxygen demand, chemical oxygen demand, ammonia, coliform bacteria, fecal coliform bacteria, and fecal enterococcus.~~ The analysis of dry weather flows (i.e., non-stormwater surface water runoff) is limited to the identification of factors that are likely to increase or decrease the potential for pollutants to enter dry weather flows originating from the Project site. Sources of dry weather flows at airports may include outdoor maintenance of planes and vehicles; building and ground maintenance; irrigation; aircraft and ground vehicle fueling, painting, stripping, and washing; chemical and fuel transport and storage; and any hazardous materials spilled on-site. ~~For the purposes of this analysis, the pollutants of concern for the receiving water body (i.e., the Santa Monica Bay) are the same as those identified above for wet weather flows.~~ The LARWQCB has identified as amendments to the Basin Plan, TMDLs for the following dry

weather pollutants of concern: nearshore debris and bacteria. In addition, the EPA has approved TMDLs for DDT and PCBs. Potential water quality impacts from dry weather flows were evaluated by identifying potential sources of dry weather flows at the Project site and evaluating whether the proposed Project would introduce pollutants of concern into these flows. The analysis of potential impacts takes into account Project-specific design features, regulatory requirements, and applicable LAX Master Plan commitments and mitigation measures.

4.4.3.1.2 Water Quality [under Regulatory Context]

Water Quality Control Plan

The agency with jurisdiction over water quality at LAX is the LARWQCB. The LARWQCB developed the Basin Plan, which guides conservation and enhancement of water resources and establishes beneficial uses for inland surface waters, tidal prisms, harbors, and groundwater basins within the region. Beneficial uses are designated so that water quality objectives can be established and programs that enhance or maintain water quality can be implemented. The Basin Plan was amended in December 2002 to incorporate implementation provisions for the region's bacteria objectives and to incorporate a wet weather Total Maximum Daily Load (TMDL) and dry weather TMDL for bacteria at Santa Monica beaches. Bacteria TMDLs for Santa Monica Bay Beaches were most recently the subject of a June 2012 amendment to the Basin Plan; this amendment combined the dry weather bacteria TMDL and wet weather TMDL into the "Santa Monica Bay Beaches Bacteria TMDL". The June 2012 amendment also revised implementation provisions for the region's bacteria objectives. In the future, the Basin Plan will be further amended after the EPA approves recently adopted TMDLs, such as the debris TMDL for Santa Monica Bay nearshore.

The Basin Plan also incorporates State Water Resources Control Board (SWRCB) statewide Water Quality Control Plans. The only applicable statewide plan at this time is the California Ocean Plan. Like the Basin Plan, the California Ocean Plan was created to establish beneficial uses and associated water quality objectives for California's ocean waters and to provide a basis for regulation of wastes discharged to coastal waters by point and non-point source discharges. In ~~December 2009~~ October 2012, the SWRCB adopted amendments to the plan ~~and is currently in the process of considering additional amendments related to desalination facilities, trash, and fecal coliform~~ to establish criteria for designating State Water Quality Protection Areas, including controls and prohibitions applicable to existing and future point source and nonpoint source discharges to protect water quality in these areas.

National Pollutant Discharge Elimination System Program

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In accordance with the CWA, the USEPA promulgated regulations for permitting stormwater discharges by municipal and industrial facilities and construction activities through the NPDES program. The Phase I NPDES municipal stormwater program applies to urban areas with a population greater than 100,000 while the industrial program applies to specific types of industry, including airports. The NPDES program for construction applies to activities that involve ground disturbance over an area of one acre or more. The NPDES permits for municipal, industrial, and construction activities are described below.

NPDES – Municipal Permit

In accordance with the CWA, a Phase I NPDES permit is required for certain municipal storm sewer system (MS4) discharges to surface waters. LAX is within the region covered by NPDES Permit No. CAS004001 (MS4 stormwater permit). The permit is a joint permit~~, with~~ covering the County of Los Angeles ~~as the "Principal Permittee"~~, the Los Angeles County Flood Control District, and 84 incorporated cities within the County of Los Angeles~~, including the City, as "Permittees~~ (Permittees). The objective of the permit, and the associated stormwater management program, is to effectively prohibit non-stormwater discharges and to reduce pollutants in urban stormwater discharges to the "maximum extent practicable" in order to attain water quality objectives and to protect the beneficial uses of receiving waters in the County of Los Angeles.

As part of the municipal stormwater program associated with the NPDES Phase 1 Permit, LARWQCB adopted the Standard Urban Stormwater Mitigation Plan (SUSMP) to address stormwater pollution from new development and redevelopment projects. The SUSMP is a model guidance document for use by permittees to select post-construction Best Management Practices (BMPs). BMPs are defined in the SUSMP as any program, technology, process, siting criteria, operational methods or measures, or engineered systems, which, when implemented, prevent, control, remove or reduce pollution.[1] The general requirements of the SUSMP include:

- Controlling peak stormwater runoff discharge rates
- Conserving natural areas
- Minimizing stormwater pollutants of concern
- Protecting slopes and channels
- Properly designing outdoor material storage areas
- Properly designing trash storage areas
- Providing proof of ongoing BMP maintenance

Three types of BMPs are described in the SUSMP: source control, structural, and treatment control BMPs. The SUSMP also specifies design standards for structural or treatment control BMPs to either infiltrate or treat stormwater runoff and to control peak flow discharge.

The NPDES Phase 1 Permit has been amended a number of times since 2001 to incorporate requirements of approved TMDLs and address other issues. The LARWQCB adopted major revisions and updates to the MS4 Permit on November 9, 2012. The primary revision was the incorporation of provisions consistent with 33 TMDLs and implementation requirements, including the reinstatement of 2006 provisions to implement the Santa Monica Bay Dry Weather Bacteria TMDL. ~~One of the major~~ Additional changes ~~in the New Development and Significant Redevelopment section of the Permit which puts primary emphasis~~ focus on new requirements for Low Impact Development (LID) practices ~~over treatment control BMPs~~. LID practices place a priority on preserving the pre-development hydrology of a project site by using BMPs that store, infiltrate, evaporate, and detain runoff. Revision of the MS4 Permit will bring the Los Angeles County Permit into consistency with other MS4 Permits that have been adopted in the past several years. Further, in May 2012, the City implemented its LID Ordinance (Ordinance No. 181899) with the intent of ensuring that development and redevelopment projects mitigate runoff in a manner that captures rainwater at its source, while utilizing natural resources. Specifically, the City's ordinance requires that the volume of stormwater runoff produced by a 0.75-inch storm event be infiltrated, evapotranspired, captured and used, treated through high removal efficiency BMPs, onsite, through stormwater management techniques that comply with the provisions of the City's *Low Impact Development Best Management Practices Handbook*. To the maximum extent feasible, onsite stormwater management techniques must be properly sized, at a minimum, to treat the volume of stormwater runoff produced by a 0.75-inch storm without any stormwater runoff leaving a project site. In accordance with *Low Impact Development Best Management Practices Handbook*, the City Watershed Protection Division has established infiltration systems as the first priority type of BMP as they provide reduction in stormwater runoff and, in some cases, provide groundwater recharge.

[1] Regional Board Executive Officer, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000. Subsequently, the City of Los Angeles adopted an ordinance authorizing implementation of the SUSMP for public and private development projects in the City (Ordinance No. 173494, passed by the Council of the City of Los Angeles on September 6, 2000).

Total Maximum Daily Load (TMDL) Program

Table 4.4-1

Adopted TMDLs for Santa Monica Bay

Water Body	Pollutant(s)
Santa Monica Bay	~~Dry Weather Bacteria~~ ~~Wet Weather Bacteria~~ Bacteria Debris DDT PCBs

Source: ~~City of Los Angeles, Hydrology and Water Quality Report for the LAX Specific Plan Amendment Study, prepared by CDM Smith for LAWA, March 2012.~~ Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan*, most recently amended June 2013, and US Environmental Protection Agency, *Santa Monica Bay Total Maximum Daily Loads for DDTs and PCBs, March 2012.*

~~**Table 4.4-2**~~

~~**Future TMDL Completion Schedule for Santa Monica Bay Offshore and Nearshore**~~

~~Pollutant/Stressor~~	~~Expected Completion~~
~~Dichlorodiphenyltrichloroethane (i.e., DDT) (tissue and sediment)~~	~~01/01/2019~~
~~Fish Consumption Advisory~~	~~01/01/2019~~
~~Polychlorinated Biphenyls (i.e., PCBs) (tissue and sediment)~~	~~01/01/2019~~
~~Sediment Toxicity~~	~~01/01/2019~~

~~**Source: State of California, State Water Resources Control Board, August 4, 2010.**~~

4.4.6.2.2 Operation – Wet Weather Pollutant Loads

Under Section 4.4.6.2.2, Operation – Wet Weather Pollutant Loads, the addition of Footnote No. 36 is a typographical error and has been removed as a reference from the following sentence:

"With respect to debris (e.g., trash) in wet weather flows from the proposed Project, activities associated with aircraft maintenance, as well as aircraft operations in general, require tight controls (i.e., to minimize potential for foreign objects and debris to enter jet engine intakes) and do not generate notable debris.~~[36]~~"

~~[36] City of Los Angeles, Hydrology and Water Quality Report for the LAX Specific Plan Amendment Study, prepared by CDM Smith for LAWA, March 2012.~~

4.5. Noise

Revise the following information under Section 4.5.6.2.2, Taxi Operation Noise, on page 4.5-34, of Section 4.5, Noise, as follows:

CNEL

Based on the number of taxiing operations and the day/night split described above in the discussion of ambient noise levels, the CNEL value associated with Project-related taxiing was estimated. The resultant CNEL values would be 44.6 dBA at the noise sensitive uses north of the nearest taxi route (Westchester), and 48.3 dBA at the south of the nearest taxi route in the City of El Segundo. When added to the existing CNELs in Westchester and El Segundo, these Project-related CNEL values would increase the existing CNEL in Westchester by approximately 0.04 dB and increase the existing CNEL in El Segundo by approximately ~~0.07~~0.05 dB. In both cases, the increase would be substantially less than the threshold of significance of a 1.5 dB increase; hence, the increased Project-related taxiing noise impact would be less than significant.

Appendix A

Original Comment Letters
on the West Aircraft Maintenance Area Project Draft EIR

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

November 5, 2013

Lisa Trifiletti, Director
Los Angeles World Airports, Capital Programming & Planning
Environmental & Land Use Planning
One World Way, Suite 218
Los Angeles, California 90045

Dear Ms. Trifiletti:

This is in response to your request for comments on Notice of Availability of Draft Environmental Impact Report (EIR) and LAX Plan Compliance Review for the West Aircraft Maintenance Area Project in the City of Los Angeles.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Los Angeles (Community Number 065043) and City of Los Angeles (Community Number 060137), Maps revised September 26, 2008. Please note that the City of Los Angeles, Los Angeles County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Los Angeles floodplain manager can be reached by calling Gary L. Moore, City Engineer, at (213) 485-4935. The Los Angeles County floodplain manager can be reached by calling George De La O, Senior Civil Engineer, at (626) 458-7155.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of the Mitigation staff at (510) 627-7260.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Brenda Martinez-Sidhom, LAWA, Stakeholders Liaison Office
Gary L. Moore, City Engineer, City of Los Angeles
George De La O, Senior Civil Engineer, Los Angeles County Public Works Department
Garret Tam Sing/Salomon Miranda, State of California, Department of Water Resources, Southern District
Michael Hornick, NFIP Planner, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

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Flex your power!
Be energy efficient!

December 5, 2013

Ms. Lisa Trifiletti
Los Angeles World Airports
Planning Division
One World Way, Suite 218
Los Angeles, CA, 90045

Re: Los Angeles International Airport (LAX)
West Aircraft Maintenance Area Project
Draft Environmental Impact Report (DEIR)
SCH#2012091037 IGR#131036/EA
Vic: LA/405/19.00-25.00, LA/105/0.50-5.00

Dear Ms. Trifiletti

The California Department of Transportation (Caltrans) hereby acknowledges receipt of the Draft Environmental Impact Report (DEIR) prepared for the proposed LAX West Aircraft Maintenance Project. Caltrans has reviewed the traffic analysis included in the DEIR and has the following comments.

- Caltrans acknowledges that the proposed West Aircraft Maintenance project is not expected to generate enough traffic to significantly impact the surrounding State highway system (Sepulveda Boulevard (State Route 1),I-405, I-105). However, due to existing traffic congestion and various other construction projects within LAX and its vicinity, the added traffic is expected to be cumulative significant at various intersections along Sepulveda Boulevard (per Table 4.7-8).

- Caltrans is now aware that LAWA has established a "Ground Transportation/Construction Office" referred to as the CALM team. Please require the CALM team to coordinate and obtain Caltrans' approval for any detour plans and lanes closures on Sepulveda Boulevard.

- ST-18 states that a "complete construction traffic plan will be developed to designate detour and/or haul routes, variable message and other sign locations, communications methods with airport passengers, construction deliveries, construction employee shift hours, construction employee parking locations and other relevant factors". Caltrans requests an opportunity to review and participate in the development of these construction management plans.

- Please be reminded that oversized construction truck deliveries expected to utilize State highways will need a transportation permit and possibly a California Highway Patrol (CHP) escort.

- Due to recurrent traffic congestion on I-405 and I-105 during peak commuting periods, please schedule heavy-duty construction-related trucks away from these periods as much as possible.

- Please continue to coordinate all traffic analysis associated with development of all project within the LAX Master Plans with Caltrans. Caltrans is concern that future development at LAX may

worsen operation of nearby I-405 and I-105 and that no comprehensive mitigation improvements are planned.

If you have any questions regarding these comments, please contact project coordinator Elmer Alvarez at (213) 897-6696 and electronically at elmer.alvarez@dot.ca.gov. You may also contact me at (213) 897-9140 and at dianna.watson@dot.ca.gov

Sincerely,

DIANNA WATSON
IGR/CEQA Program Manager
Caltrans, District 7

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December 2, 2013

Via E-Mail and FedEx

Lisa Trifiletti
Capital Programming & Planning
Environmental & Land Use Planning
Los Angeles World Airports
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Los Angeles, CA 90045

Re: Draft Environmental Impact Report for West Aircraft Maintenance Area

Dear Ms. Trifiletti:

We submit this letter on behalf of our client, the City of El Segundo, to comment on the Draft Environmental Impact Report ("DEIR") recently released by Los Angeles World Airports ("LAWA") for the West Aircraft Maintenance Area ("WAMA" or the "Project") at Los Angeles International Airport ("LAX"). As LAWA is aware, El Segundo has been an active participant in the planning process for the Project and expects to be actively involved in further follow-up discussions.

As explained below, the DEIR is legally inadequate under the standards of the California Environmental Quality Act ("CEQA"), Public Resources Code sections 21000 et seq. If revised to provide all of the required evidence and analyses, the DEIR could well determine that the Project will have potentially significant environmental impacts that cannot be avoided through mitigation, particularly noise impacts resulting from increased operations near the airport's border with El Segundo.

The DEIR's inadequacies begin with the fact that the document fails to accurately and completely describe the Project and its operations once constructed. For those aspects of the Project that the DEIR does describe, LAWA assumes operation levels that would result in less-than-significant impacts, but has not committed to maintain those levels through appropriate enforcement and monitoring. Thus, LAWA has not demonstrated that the impacts analysis correlates with the *actual* level of future operations likely at the WAMA.

Second, the Project as described in the DEIR is not consistent with the LAX Master Plan. As you know, the Master Plan was the subject of major litigation and a negotiated settlement, and was intended to serve as the guide for the airport's future development. The Project, however, would occupy land designated in the Master Plan for an entirely different use. As discussed below, this deviation calls into question the purpose of the Master Plan and LAWA's commitment to following it.

Third, the DEIR raises serious questions about the Project's impacts, particularly its noise impacts on El Segundo. The DEIR entirely disregards El Segundo's noise ordinance as a standard of significance in analyzing the Project's noise impacts, and fails to fully account for low-frequency noise impacts from anticipated engine run-ups at the WAMA. Dr. Sanford Fidell's comments ("Fidell Memo") on the DEIR's noise analysis are attached to this letter as Exhibit 1 and incorporated in their entirety herein.

This letter, which incorporates by reference our October 30, 2012 comments on the Notice of Preparation ("NOP"), attached as Exhibit 2, explains these concerns and other shortcomings of the DEIR. El Segundo calls on LAWA to revise the DEIR to evaluate fully the potentially significant impacts of the Project on the City's residents.

I. The DEIR's Description of the Project is Inadequate.

LAWA must describe the Project completely and accurately in the DEIR. "An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 727.

A. The DEIR Does Not Provide Substantial Evidence to Support Its Assumptions About WAMA Operations.

The DEIR frequently states that the assumptions underlying its analysis are "conservative." To the contrary, the Project description is misleadingly vague and open-ended. LAWA uses arbitrary assumptions about WAMA operations in order to conclude that nearly all of the WAMA's impacts will be less than significant. The assumptions in the DEIR are not supported by substantial evidence, and LAWA has not committed to monitor, maintain, or enforce the operation levels on which its assumptions are based. Without a commitment to monitor, maintain, and enforce operation levels that form the basis of the DEIR's impacts analysis, the analysis lacks credibility and violates CEQA.

Assumed Operation Levels Must Be Actual Levels: Although the DEIR does not clearly indicate who will use the WAMA, it suggests that LAWA will lease certain uses of the WAMA to tenants rather than make the WAMA available to airlines on a "first come, first served" basis. *See, e.g.,* DEIR at 2-10 (hangar to be used by "eventual tenant"). The DEIR must clarify the anticipated use arrangement because it relates directly to the eventual use of the WAMA, including the assumptions about operations that form the basis for the DEIR. If LAWA has identified one or more tenants for the WAMA—such as Qantas and U.S. Airways, whom El Segundo suspects are intended WAMA tenants based on Table 4.5-9 of the DEIR—the DEIR should confirm this and provide information on the tenancies. Indicating that tenants have been identified or confirmed would also provide evidence of a present need for the WAMA, which, as noted below, LAWA has not sufficiently demonstrated.

To guarantee that its assumptions about WAMA operations and the DEIR itself are accurate, LAWA should include operation controls as terms of any leases with future tenants. Such operation controls should include the number of engine run-ups the tenant may conduct per month or year (not to exceed a total of 60 run-ups per year by all tenants combined, as indicated by the DEIR), and the times of day run-ups may be conducted, observing LAWA's existing run-up curfew from 11 p.m. to 6 a.m. *See* LAWA's Aircraft Noise Abatement Operating Procedures and Restrictions at 5-8 through 5-9, attached as Exh. 3. Terms should also include monthly run-up and other maintenance reports by tenants; a commitment by WAMA tenants to use ground power instead of auxiliary power units, except when APUs are being maintained (*see* DEIR at 2-15, indicating RON/RAD spaces will allow full aircraft functionality without running APUs); a commitment by ADG VI carriers not to exceed 80% power during engine run-ups (as indicated by Table 4.5-9 of the DEIR); and a commitment to tow aircraft to and from the WAMA, rather than taxi under aircraft power, as described in the DEIR. *See* DEIR at 4.5-32.

If LAWA cannot ensure that the operation levels it assumes for purposes of the DEIR's impacts analysis will be the *actual* operation levels (or at least reasonably approximate them), then it must revise the DEIR to use "worst case scenario" operation levels for all impacts, including 100%-power engine run-ups by A380 and B-747 aircraft and 100% taxiing to and from the WAMA. *See Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 279, 282 (environmental review must include all of a project's potential impacts); *City of Redlands v. County of San Bernardino* (2002) 96 Cal.App.4th 398, 309 (environmental review must consider all activities permitted by project).

***Engine Run-ups*:** The DEIR omits crucial information about the timing and frequency of anticipated engine run-ups during run-up curfew hours. As an initial matter, all information about anticipated levels of operations at the WAMA, especially the kinds of operations that are of greatest concern to neighbors such as El Segundo, should be included in the Project description.

Table 4.5-9 of the DEIR, showing the anticipated number of annual WAMA run-ups by time of day (daytime, evening, and night), indicates that Qantas ADG VI aircraft (A380 and B-747, the largest aircraft at LAX) will not conduct engine run-ups between 7 p.m. and 7 a.m. As these large aircraft are the *only* aircraft anywhere at LAX that, according to the table, will not conduct run-ups during evenings or nights, the DEIR should explain this anomaly, particularly since Table 4.5-11 indicates that A380 and B-747 run-ups at the WAMA may result in noise levels as high as 80 dBA at some locations in El Segundo. Otherwise, the data appears to have been excluded to support a finding of less-than-significant noise impacts.[1]

If, on the other hand, the absence of evening and nighttime run-ups by these aircraft implies a commitment by LAWA to daytime-only ADG VI run-ups—an explanation that would justify using this assumption as the basis for the DEIR's impacts analysis—then the DEIR must explicitly make this commitment part of an enforceable mitigation measure. Any lease with future WAMA tenants, such as Qantas, should include a mandatory run-up schedule with penalties for violations.

Table 4.5-9 also indicates that U.S. Airways will conduct 15.6 annual run-ups between 10 p.m. and 7 p.m. While this time range reflects the CNEL nighttime "penalty" period the DEIR uses to evaluate noise impacts, it conceals whether U.S. Airways run-ups would occur during curfew hours. The table must be revised to indicate when all WAMA run-ups will occur relative to curfew hours.

Finally, it is unclear whether the DEIR's estimate of annual engine run-ups at the WAMA takes into account only "high-power" run-ups, or includes "low-power"

---

[1] Similarly, Table 4.5-9 shows that the A380 and B-747 are among the only aircraft at LAX (and the only aircraft anticipated at the WAMA) that will conduct run-ups at 80% power, as opposed to 100%. The DEIR does not explain the reason for the less-than-full power setting. Unless it is an implicit commitment to enforce 80%-power run-ups of ADG VI aircraft at the WAMA—in which case LAWA must be explicit about enforcing this limit—the DEIR should explain why this assumption was used.

run-ups as described on page 2-10 of the DEIR. While high-power run-ups require the use of a blast fence or ground run-up enclosure ("GRE"), low-power run-ups may be performed at or above engine idle and do not necessarily require installed safety devices. *See* DEIR at 2-10. If WAMA operations may include low-power run-ups in the apron area in addition to high-power run-ups at the blast fence, the DEIR must say so and include the potential impacts in its analysis.

Remain Overnight/Remain All Day Spaces: The Project description indicates that the WAMA's RON/RAD spaces would serve as parking areas for aircraft awaiting maintenance "and/or placement at a terminal gate for departure." DEIR at 2-9. If the WAMA's RON/RAD spaces will be used for non-maintenance aircraft parking—despite the fact that the Project Objectives indicate that aircraft maintenance is the *sole* purpose of the WAMA (DEIR at 2-2)—the DEIR must say so. Additional aircraft parking at the WAMA would free up gates that otherwise are occupied by parked aircraft (*see* DEIR at 2-13, indicating parking at CTA "can become crowded during overnight periods"), thereby creating the potential for increased airport operations. The DEIR, however, repeatedly dismisses the possibility of increased airport operations resulting from the Project. The DEIR must provide an enforceable commitment that RON/RAD spaces will be used only for maintenance, or else discuss the potential impacts of increased airport operations resulting from additional aircraft parking at the WAMA.

Additionally, the DEIR suggests that RON/RAD spaces at the WAMA will provide ground power, precluding the need for auxiliary power units. DEIR at 2-15. The DEIR does not discuss the noise, air quality, or other impacts from APUs. Implying that APUs will not be used at the WAMA is not sufficient; the DEIR must clearly state that APU use will be prohibited (except for maintenance of APUs), or else include the noise, air quality, and other impacts of APU usage in the impacts analysis.

Aircraft Movements to and from the WAMA: The DEIR states that 13 morning (a.m.) and 13 afternoon/evening (p.m.) aircraft movements to and from the WAMA are anticipated each day, for a total of 26 movements per day. DEIR at 2-13 through 14. While the DEIR briefly explains the basis for these assumptions, the information is unhelpful in determining the anticipated intensity of operations at the WAMA, given the remaining uncertainty about the approximate number of aircraft and ratio of larger to smaller aircraft at the WAMA at any given time of day.[2] Thus, there is

[2] The DEIR states that the WAMA could accommodate up to ten ADG VI aircraft, a larger number of smaller aircraft, or a mix of aircraft sizes. DEIR at 2-13. The DEIR does not clearly indicate how many smaller aircraft the WAMA could accommodate.

no way to determine whether LAWA's assumptions about aircraft movement are "conservative" or even reasonably reflective of actual use of the WAMA. The DEIR must provide more concrete information about the anticipated ratio of larger to smaller aircraft using the WAMA, and the intensity of use of the WAMA itself on a single day, so that LAWA's aircraft movement assumptions provide a meaningful data point.

Construction Staging: The DEIR states that the Project could displace existing construction staging at the Project site, but that any relocation "would not materially change the general pattern and type of activities that have occurred in these construction staging areas over the past several years." DEIR at 2-15. The DEIR neither indicates *where* existing construction staging may be relocated, nor contemplates the potential impact of relocated staging on the *new* locations. The Project could have significant secondary effects on El Segundo and other airport neighbors if existing construction staging at the Project site is relocated to staging areas immediately adjacent to neighbors' borders, including El Segundo's. The Project description should clearly state where relocation of construction staging may occur, and the DEIR should analyze the potential impacts of this relocation, since these impacts are a reasonably foreseeable aspect of the Project. *See Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396.

B. The Project Description Does Not Demonstrate That the WAMA Will Not Increase Overall Operations at LAX.

LAWA asserts that the Project will not increase overall operations at LAX. *See, e.g.,* DEIR at 2-9. However, the Project description and the rest of the DEIR do not provide substantial evidence to support this assertion.

The DEIR states that all operations that will take place on the WAMA site—maintenance hangars, engine ground run-ups, RON/RAD parking, and ancillary facilities—currently occur elsewhere at LAX and would simply be consolidated at the WAMA. *See* DEIR at 2-9; 4.5-26 through 31. However, as we explained in our comments on the NOP, the DEIR does not fully and clearly account for existing operations so that they can be compared to WAMA operations that will "replace" them. To demonstrate that the WAMA will not increase airport operations, the DEIR must indicate the location, frequency, and intensity of operations that the WAMA will replace—at the very least, with figures similar to Figure 4.5-1 of the DEIR, showing locations of current engine run-ups. Without a "one-to-one" comparison of anticipated WAMA operations and corresponding draw-downs elsewhere, the DEIR lacks substantial evidence that the WAMA will not increase overall airport operations. Clear

documentation is critical to ensure that the maintenance facilities, RON/RAD parking, and other facilities slated for replacement are actually decommissioned and do not continue to be operated following WAMA completion.

Second, while the total Project area is 84 acres, the DEIR indicates that only 68 acres will be developed, leaving 16 acres undeveloped and unpaved. DEIR at 2-9. The DEIR does not explain why these "unpaved islands" (DEIR at 2-9)—which are approximately the same area as the combined footprint of both ADG VI hangars included in the WAMA, and thus could likely be reconfigured to accommodate another hangar or blast fence—will not be developed as part of the proposed Project. Considering the development value to LAWA of each acre of airport land, it is difficult to imagine that LAWA plans to do nothing with these acres; indeed, the DEIR states that these 16 acres will be graded along with the 68 acres to be developed, suggesting preparation for future development. DEIR at 2-16, fn. 4. If LAWA has reasonably foreseeable plans for developing this land, those plans must be included in the DEIR's analysis. Delaying this analysis for another time, when it should instead be conducted as part of the WAMA, may amount to illegal project segmentation under CEQA. *See Bozung*, 13 Cal.3d at 283-84 (CEQA mandates that "environmental considerations do not become submerged by chopping a large project into many little ones").

Third, the DEIR does not explain why the WAMA—a major, $175 million infrastructure project, covering a significant portion of the airport's southwest quadrant—is justified by the added capacity of a mere 60 annual, or 5 monthly, engine run-ups. *See* DEIR at 2-13. If the DEIR is to be believed, the WAMA would accommodate less than 2.5% of the airport's current total run-ups (2,496 per year). *See* DEIR Table 4.5-5. It is difficult to understand why a project that would add so little run-up capacity is so urgently needed, unless LAWA plans to do more with it than the DEIR indicates. We strongly suspect that the actual maintenance, RON/RAD, and other activities at the WAMA will be much greater than the DEIR acknowledges and evaluates. This is a serious CEQA problem.

II. The Project Is Inconsistent With the LAX Master Plan.

The 2004 LAX Master Plan guides and provides a comprehensive look at all development at the airport. LAWA, neighboring jurisdictions like El Segundo, and many other stakeholders spent years developing the Plan, which, according to the settlement resolving litigation over the Plan, is a "general plan for the airport, setting out goals, policies, objectives, and programs for the long-term development and use of the airport." The Master Plan itself states that it contains "working guidelines to be consulted

by LAWA as it formulates and processes future site-specific projects." Master Plan, Preface.

As we explained in our comments on the NOP, the Project is inconsistent with the Master Plan. The Plan sets aside the Project site for use as an employee parking facility (DEIR at 5-23) and locates the new western maintenance facilities on the other side of Taxiway AA, immediately west of the existing United-Continental Hangar (DEIR at 5-9). The Project, however, deviates from the Plan by "exchanging" the proposed uses for these sites and making other changes to the Plan, including expanding the footprint of the proposed development west of Taxiway AA. DEIR at 4.6-10. These inconsistencies are a potentially significant impact under the DEIR's own standard: the proposed Project "conflict[s] with an[] applicable land use plan." DEIR at 4.6-4. The DEIR brushes the conflict aside by claiming that the Project "would not materially change the conceptual framework for development in the Project area . . . [and] would be consistent with the LAX Master Plan Program by providing an aircraft maintenance area in the southwest portion of the airport." DEIR at 4.6-10. This explanation is insufficient—the Project is not what the Master Plan calls for and therefore conflicts with the Plan.

Either the Project must be changed to comply with the Master Plan, or the Plan must be amended to allow the use proposed by the Project. LAWA cannot legally depart from the approved Master Plan in a substantial way without formally amending the Plan and conducting the necessary CEQA analysis. Amending the Plan would be more than a paper exercise because it would help ensure that LAWA follows through with its proposal to turn the area east of Taxiway AA into employee parking, rather than additional maintenance or other unauthorized facilities. The DEIR must describe LAWA's Plan amendment process or similar measure for ensuring that any future development on or near the site of the United-Continental Hangar, American Airlines employee parking, and former Continental training building is for employee parking only.

El Segundo has consistently objected to LAWA's departures from the Master Plan. LAWA's apparent disregard for the Plan is thus deeply troubling. We urge LAWA to re-commit to following the Master Plan as a "general plan for the airport." If changed circumstances suggest deviations from the Plan, LAWA should re-initiate the planning process so that stakeholders can understand and help shape the overall vision for the airport. Making changes in the piecemeal, low-profile manner embodied by the Project, with its incomplete description and inadequate impacts analysis, leaves the public in the dark and causes serious problems in the environmental review process.

III. The DEIR Fails to Account for the Project's Noise Impacts.

The DEIR entirely disregards El Segundo's noise ordinance as a standard of significance in analyzing the Project's noise impacts. *See* City of El Segundo Municipal Code, Title 7, Chapter 2 ("Noise and Vibration"), attached as Exh. 4.[3] El Segundo's standard prohibits the creation of noise levels greater than 5 dB higher than ambient noise levels on residential properties, as well as "loud, unusual, or unnecessary" noise that "disturbs the peace, quiet, and comfort of any neighborhood, or which causes discomfort to any reasonable person of normal sensitivity in the area." Noise Ordinance §§ 7-2-4 through 7-2-6. These are reasonable significance standards for evaluating the Project, which, according to the DEIR, may produce single-event noise levels exceeding 80 dBA at some locations in El Segundo. DEIR Table 4.5-11. Rather than evaluate the impact of these noise levels using El Segundo's standards, however, the DEIR merely states that single-event noise levels "may or may not be perceptible based on the other noise source levels at the community sites." DEIR at 4.5-25. The DEIR is silent about the noise El Segundo residents will *actually* hear from daily WAMA operations, including noise from large aircraft engine run-ups.

By ignoring El Segundo's noise standard and existing ambient noise levels, and relying instead on the FAA's generic "average annual day" standard to assess the Project's noise impacts, the DEIR impermissibly disregards the sensitivity of the community most affected by the Project's noise impacts. *See Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Comrs.* (2001) 91 Cal.App.4th 1344, 1380-81 (recognizing "significance of an activity may vary with the setting" as basis for CEQA's site-sensitive threshold of significance for noise). Failure to address El Segundo's standard may result in significant underestimation of the Project's audible noise impacts.

Moreover, despite El Segundo's recommendations during the WAMA planning process that LAWA carefully study the Project's low-frequency noise impacts, the DEIR's analysis ignores the secondary impacts of low-frequency airborne noise caused by engine run-ups. *See* Fidell Memo at 1. These secondary impacts manifest as rattling in the interiors of homes and have been shown to cause significant annoyance up to one mile away—farther than the Project's distance from many sensitive receptors in El Segundo. *See* Fidell Memo at 3-4. By relying on A-weighted noise metrics in its

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[3] *See also* City of El Segundo General Plan, Noise Element, Goal N1 (stating the City's objective to ensure that City residents are not exposed to stationary or mobile noise levels in excess of El Segundo's Noise Ordinance standards), attached as Exh. 5.

evaluation of the Project's noise impacts, the DEIR does not account for the unique physics or full spectrum of ground-level, airborne engine run-up noise, whose low-frequency content is more effectively evaluated under a C-weighted analysis. Fidell Memo at 2. The DEIR does not contain a C-weighted noise analysis, even though LAWA is capable of conducting one. *See* Community Noise Roundtable, Recap of Meeting of September 20, 2010, attached as Exh. 6. Consequently, "the magnitude of low frequency sound levels that operations at the WAMA would produce in residences in El Segundo, as well as estimates of the prevalence of annoyance associated with such noise events, are conspicuously absent from the DEIR." Fidell Memo at 2.

In addition to these flaws in the DEIR's noise analysis and the inadequate quantification of engine run-ups discussed in Part I of this letter, El Segundo has the following concerns relating to the Project's noise impacts:

***Automated Run-Up Noise Monitoring*:** The DEIR should include an enforceable mitigation measure requiring rigorous monitoring of the Project's low-frequency noise impacts by including automated run-up noise monitoring on site and regular public reporting. Currently, LAWA does not report any explicit monitoring of run-ups occurring after curfew hours except "enforcement actions," as indicated in the airport's Quarterly Noise Reports. Reporting "enforcement actions" tells the public nothing about the actual occurrence of engine run-ups during curfew hours. Put another way, LAWA does not currently provide the public with data regarding the frequency or occurrence of run-ups during curfew hours. Rather, LAWA only reports that it has not taken enforcement action in response to such run-ups. That could mean no or few such run-ups occur or that LAWA has elected not to enforce the curfew. An automated system at the WAMA should use readily available technology to identify and report run-ups by distinguishing run-up noise from other low-frequency aircraft noise. Ground-level, airborne engine noise has a unique temporal envelope, spectral balance, and event onset and offset times, and a longer duration than other aircraft engine noise. Fidell Memo at 6. Automated monitoring would enable the airport and the public to "obtain the technical information needed to assess whether the [Project] will merely inconvenience the Airport's nearby residents or damn them to a somnabulate-like existence." *Berkeley Keep Jets*, 91 Cal.App.4th at 1382.

***Location of Ground Run-Up Enclosures*:** El Segundo is troubled by the removal, after the publication of the NOP, of the GRE from LAWA's plans for the Project. The Master Plan calls for the development of two GREs. Master Plan Addendum at 2-95. Moreover, the 2010 Stipulated Variance approved by LAWA, El Segundo, and others provides that LAWA will design two GREs by 2015. *See also In the Matter of*

Noise Variance Application for City of Los Angeles et al., Dept. of Transp. Case No. L2010041216 (ordering LAWA to design two GREs). With this deadline rapidly approaching, LAWA must commit to the design and placement of the two GREs. El Segundo recommends that LAWA's "airport-wide GRE siting study" (DEIR at 5-53) commence immediately. The study should conclude before the construction of the WAMA is complete and include serious consideration of the Delta maintenance area and Western Remote Gates as potential GRE sites. As we noted in our comments on the NOP, the GRE planning process should also seek to maximize the degree to which the final GRE structures attenuate/absorb sound through customization of components to meet specifications developed in consultation with El Segundo's noise consultant. The study process should also include evaluation of appropriate GRE use rules/mandates.

IV. LAWA Must Observe El Segundo's Restrictions on Truck Haul Routes.

The Project site currently contains approximately 295,000 cubic yards of accumulated "stockpiled material." DEIR at 2-17. This material will need to be exported off-site for re-use or disposal. *Id.* Haul trucks, in addition to construction trucks for the Project, will enter and exit the Project site approximately 228 times daily during the peak construction month. DEIR at 4.7-20.

As we noted in our comments on the NOP, El Segundo requests that truck trips for the Project avoid the City of El Segundo. If any truck travel through the City occurs, LAWA must ensure that traffic observes the truck haul routes described in El Segundo's General Plan Circulation Element. *See* Circulation Element Exhibit C-13, attached as Exh. 7; *see also* General Plan Circulation Element Excerpts (Goals, Policies, and Objectives), attached as Exh. 8.

Additionally, the DEIR does not evaluate the impact of heavy truck traffic on street pavement conditions. Imperial Highway is already in very poor condition and could be further impacted by Project-related haul truck traffic. The City requests that LAWA include pavement resurfacing on Imperial Highway as a mitigation measure.

V. The DEIR's Consideration of Alternate Sites for the Project is Inadequate.

An EIR must describe a range of alternatives to the proposed project, and its location, that would feasibly attain the project's basic objectives while avoiding or substantially lessening the project's significant impacts. Pub. Res Code § 21100(b)(4); CEQA Guidelines § 15126.6(a). As the California Supreme Court explained in *Laurel Heights*, "[w]ithout meaningful analysis of alternatives in the EIR, neither the courts nor

the public can fulfill their proper roles in the CEQA process." *Laurel Heights*, 47 Cal.3d at 404.

The DEIR fails to justify its rejection of the "West Remote Pads/Gates Site" alternative. In the City's letter commenting on the WAMA NOP, El Segundo recommended that at least some WAMA components, such as a hangar, some RON/RAD spots, and/or a GRE, be built in the Western Remote Gates area. This recommendation was based on the reasonable assumption that LAWA will ensure no net increase in airport operations by decommissioning part, if not all, of the Western Remote Gates. The DEIR, however, ignores the likelihood of decommissioning these gates and rejects the West Remote Pads/Gates Site alternative on the ground that "the site is highly utilized for passenger gate facilities and for aircraft parking (i.e., RON/RAD), including special-purpose use . . . and would not be available for use during the time frame required for development of the proposed Project." DEIR at 5-3. Given that both the WAMA and the Midfield Satellite Concourse Phase I ("MSC North") projects are slated for completion in 2019 (DEIR at 3-6), and the MSC North project will likely require the decommissioning of some Western Remote gates, the DEIR's statement that the Western Remote Gates would not be available as an alternative location during the necessary time frame rings hollow. The DEIR must explain how LAWA will continue operating all of the Western Remote Gates, despite the addition of new gates as part of airport expansion projects elsewhere, such that none of the proposed WAMA operations could be sited at the Western Remote Gates. *See Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1465 (rejecting EIR that included only "barest of facts" regarding alternatives and "vague and unsupported" claims about their merits).

The DEIR's analysis of the "Alternate Site" alternative is also inadequate. The discussion of this alternative does not mention that its location, the Delta maintenance area, is the Master Plan's proposed location for one of the two GREs. Master Plan Addendum at 2-95. The DEIR fails to state that this alternative would enable LAWA to retain the GRE component of the original WAMA design and fulfill part of its obligation to design two GREs by 2015. Moreover, LAWA's disfavor of the Alternate Site alternative's inconsistency with components of the Master Plan, such as the Plan's retention of "approximately 176,000 square feet of existing cargo space" (DEIR at 5-53), is incongruent with LAWA's willingness to depart substantially from other Plan elements for purposes of developing the Project. The Master Plan is a comprehensive blueprint for development at LAX, not an assortment of projects from which LAWA may pick and choose.

Finally, the DEIR's disfavor of the Alternate Site, Reduced Project, and West Remote Pads/Gates Site alternatives for their purported inability to meet the WAMA's maintenance objectives (*see, e.g.,* DEIR at 5-44 and 5-54) is inconsistent with the Master Plan's clear indication of a planned *net reduction* in overall maintenance activities at LAX. *See* Master Plan Addendum at 2-95 (anticipating net reduction of approximately 250,000 square feet of maintenance facilities). This reduction would require relocating some maintenance activities currently occurring at LAX to other airports. Dismissal of these alternatives for their supposed inability to accommodate all maintenance activities anticipated at the WAMA, and the necessity to accommodate some activities at other airports (DEIR at 5-44), ignores the Master Plan's clear policy directive to reduce maintenance activities at LAX.

VI. Conclusion

In sum, LAWA should take no action to adopt any alternative until it has addressed the DEIR deficiencies and Project recommendations discussed in this letter.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Joseph "Seph" Petta

cc: City Council
Greg Carpenter, City Manager
Sam Lee, PBS Director
Kimberly Christensen, AICP, Planning Manager

Exhibits:

1. Fidell Memorandum, Resume, and article by Fidell et al. (2003)
2. Comments of City of El Segundo on WAMA Notice of Preparation, October 30, 2012
3. LAWA Aircraft Noise Abatement Operating Procedures and Restrictions, September 2010
4. El Segundo Municipal Code Chapter 7-2 "Noise and Vibration"
5. General Plan Noise Element Excerpts (Goals, Policies, and Objectives)
6. Recap of September 20, 2010 Meeting of Community Noise Roundtable
7. General Plan Circulation Element Truck Haul Route Map (Exhibit C-13)
8. General Plan Circulation Element Excerpts (Goals, Policies, and Objectives)

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Exhibit 1

FIDELL COMMENTS ON LAWA'S WAMA DEIR

INTRODUCTION

The Noise element of the October 2013 Draft Environmental Impact Report of LAWA's "West Aircraft Maintenance Area Project [WAMA]" is defective because it fails to disclose or meaningfully quantify low frequency noise impacts in El Segundo attributable to jet engine maintenance at the proposed facility. The City of El Segundo formally notified LAWA at the start of the EIR process, and again in the course of LAWA's analyses, of its strong concern for quantification and analysis of low frequency noise levels and impacts associated with operation of the WAMA. El Segundo further supplied LAWA with peer-reviewed technical publications which explain the quantification of ground-level, low frequency aircraft noise, and which provide interpretive criteria for assessing impacts of low frequency jet engine noise.

Nonetheless, the analyses described in Section 4.5.4.3 of LAWA's DEIR remain inappropriately and erroneously restricted to analyses of measurements and predictions of A-weighted noise source levels. Rather than taking advantage of the frequency-specific capabilities of Soundplan (the noise modeling software LAWA used to analyze aircraft engine runup-noise), the DEIR confines itself to A-weighted[1] noise metrics preferred by the Federal Aviation Administration (FAA) for documents compliant with its implementing regulations for the National Environmental Policy Act (NEPA). The DEIR is entirely silent about the annoyance of secondary emissions inside residences.

FAA's regulatory preferences for defining and assessing noise impacts of aircraft movements are not germane in the present case. Noise that is "loud, unusual, or unnecessary," that "disturbs the peace, quiet, and comfort of any neighborhood, or which causes discomfort to any reasonable person of normal sensitivity in the area," or that create noise levels greater than 5 dB higher than ambient levels in residential areas, exceeds El Segundo's noise standards under the City's Ordinance 1242, 1-16-1996. LAWA's DEIR fails to evaluate the Project's potential noise impacts against El Segundo's standards and to quantify, analyze and disclose *bona fide* impacts of aircraft noise-induced rattle in residences associated with engine maintenance at the proposed facility. Section 4.5.8 of the DEIR concludes that "no mitigation

[1] The DEIR misconstrues and misleads readers about the utility of A-weighted noise measurements for present purposes when it notes that "With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies." The noise effects of concern in the present case are due to indoor exposure of residents to secondary emissions within residences. Rattling noises that are caused by airborne low frequency noise but produced by rattling objects inside homes are heard at frequencies considerably higher than those of the noises that excite them. The DEIR's reliance on A-weighted sound levels for measurements and predictions are thus of little direct relevance.

measures specific to the proposed Project are required" because the DEIR failed to identify any "significant" noise or vibration impacts. This conclusion is faulty because the analyses of the DEIR improperly failed to apply reasonable significance standards and explicitly consider annoyance due to secondary emissions incited by airborne engine run-up noise.

DIFFERENCES BETWEEN NOISE IMPACTS OF AIRCRAFT IN FLIGHT AND THOSE ASSOCIATED WITH JET ENGINE RUN-UPS

Noise emissions associated with stationary engine run-ups conducted at the proposed WAMA differ from the noise emissions of aircraft in flight in several ways relevant to disclosure and assessment of WAMA-induced noise impacts. Single event engine maintenance noise is often of considerably greater duration than flyover noise; over-ground propagation paths from engine maintenance facilities to receivers are frequently shorter than air-to-ground propagation paths of flyover noise; and the frequency spectrum of the received noise often contains relatively greater amounts of low frequency noise than that produced by aircraft in flight. Further, airborne low frequency sound levels[2] produced by large aircraft engines are sufficient to excite secondary emissions (rattling sounds) in exposed residences made by light or vertically suspended architectural elements (*e.g.*, windows, doors, ventilation system ductwork, wall hangings, and other household paraphernalia).

It is the low-frequency content of engine run-up noise that is primarily responsible for rattle in nearby residential structures, as documented by Fidell *et al.* (1999, 2001), *inter alia*. The A-weighting frequency network of all of the noise metrics considered in the DEIR discriminates heavily against low frequency noise, as shown in Figure 1. At 50 Hz, for example, Figure 1 shows that A-weighted sound levels are penalized by more than four orders of magnitude with respect to A-weighted sound levels in the vicinity of 1,000 Hz.[3] A-weighted noise metrics (such as CNEL and DNL) also understate the relative loudness of low frequency noise of increasing sound levels.

As a result, the magnitude of low frequency sound levels that operations at the WAMA would produce in residences in El Segundo, as well as estimates of the prevalence of annoyance associated with such noise events, are conspicuously absent from the DEIR. The technical publications which El Segundo provided to LAWA at the start of its DEIR analyses are based in large part on actual measurements of low frequency noise associated with thrust

[2] Structural vibration due to groundborne energy propagated from engine run-up pads to residences is ***not*** a pre-requisite for production of audible rattle in residential construction. It is ***not*** necessary to shake an entire structure or its foundation to produce highly annoying rattling sounds inside living quarters.

[3] A change of 10 dB - an order of magnitude - in sound levels is equivalent to a factor of two in loudness. A change of 40 dB thus implies a factor of 16 change in loudness.

reverser and start-of-takeoff-roll noise in El Segundo. These references describe the derivation of a dosage-response relationship between low frequency sound levels and the prevalence of high annoyance with rattle, as seen in Figure 2. They also demonstrate that the prevalence of high annoyance due to low frequency engine noise is readily measured at distances of nearly a mile from residences (see Figure 3). It is thus all the more puzzling that LAWA's DEIR omitted any consideration of the information contained in Figure 2.

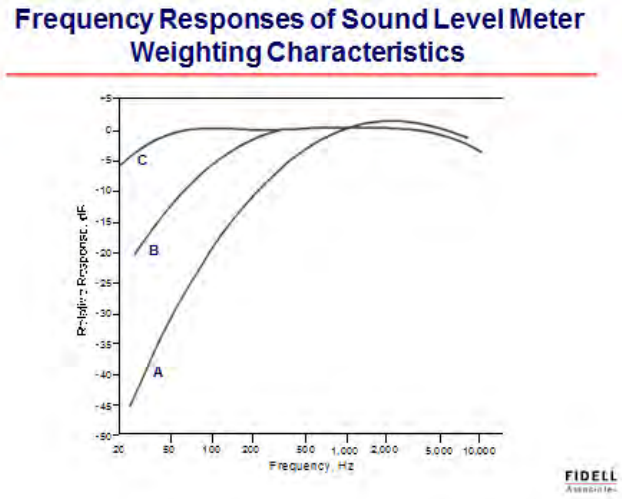

Figure 1: The A-weighting frequency network discriminates heavily against low-frequency sounds

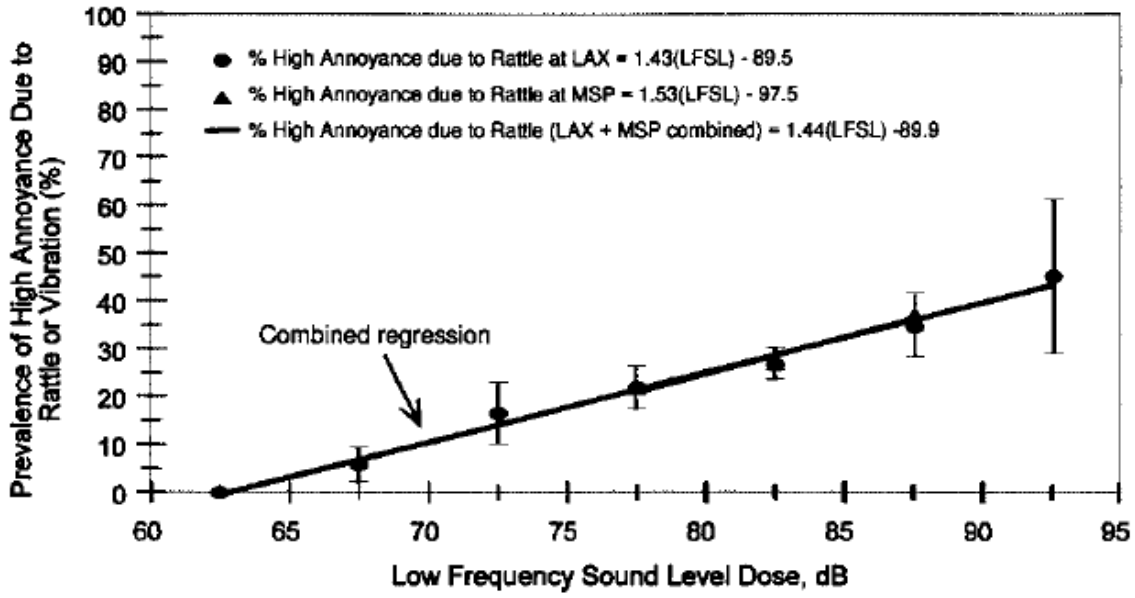

Figure 2: Dosage-response relationship between low frequency sound levels and the prevalence of high annoyance

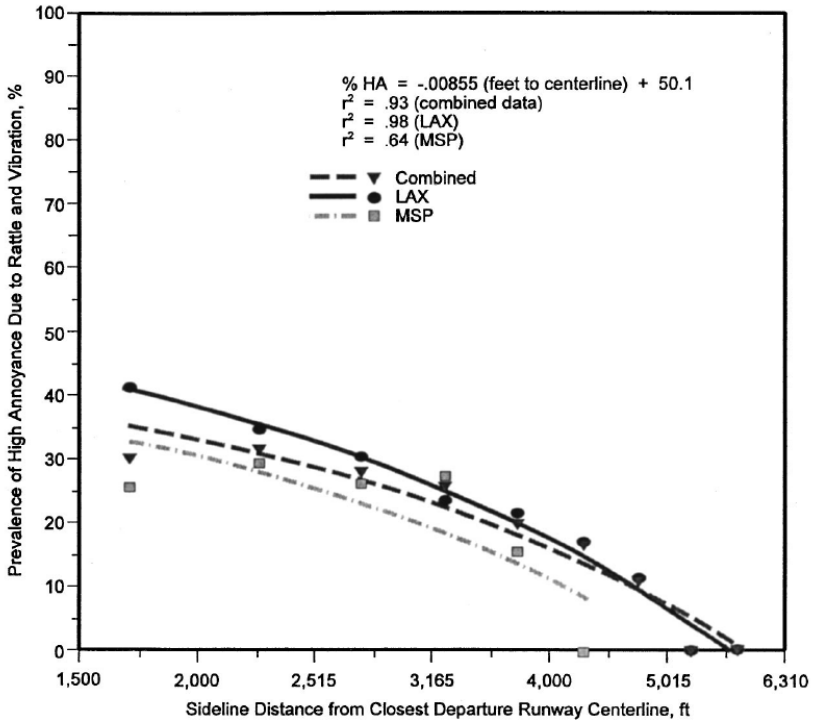

Figure 3: Relationships between distances from low-frequency noise sources and prevalence of residential high annoyance due to rattle and vibration.

Figure 3 shows that about a quarter or more of the residential population is highly annoyed by rattle associated with exposure to low frequency jet engine noise at distances comparable to the distance from the proposed WAMA to some residences in El Segundo. As points of reference, 1) FAA considers a DNL value of 65 dB as a threshold of significant noise impact; and 2) FICON'S (1992) dosage response relationship, on which FAA relies, indicates that 12.3% of the population is highly annoyed by transportation noise exposure at a Day-Night Average Sound Level (DNL) of 65 dB. In other words, the prevalence of high annoyance with rattle and vibration due to low frequency aircraft noise that is likely to be produced at the WAMA is about *twice* as great as that which FAA considers to define a "significant" noise impact. (In fact, DEIR page 4.5-24 shows that the nearest sensitive receptor in El Segundo is approximately 1,550 feet from the proposed WAMA, so the prevalence of annoyance with indoor rattle caused by engine run-ups may be greater yet.)

REVISIONS REQUIRED TO THE DEIR TO ADDRESS EL SEGUNDO'S CONCERNS

As noted above, the DEIR is written as though it were intended to satisfy FAA's regulatory preferences, even though it is El Segundo's noise concerns that are properly at issue in this case. For example, much of the DEIR's noise modeling is conducted on an "average annual day" basis. Section 7-2-6 of El Segundo's noise ordinance declares that its unlawful to willfully make, produce, suffer or allow to be produced by human voice, machine, animal or device, or any combination of same" loud, unusual, or unnecessary noise which disturbs the peace, quiet and comfort of any neighborhood, or which causes discomfort or annoyance to any reasonable person of normal sensitivity in the area. El Segundo's rules have nothing to do with hypothetical "annual average day" modeling constructs of the sort assumed by FAA's Integrated Noise Modeling software.

El Segundo's noise standards, including the standard for actions causing noise levels greater than 5 dB higher than ambient levels in residential areas, should have been considered as a significance standard in the DEIR.[4] At the very least, the DEIR must explicitly analyze and present information about the range (maximum - minimum) and variability *(i.e.*, standard deviation) of low frequency sounds levels to be produced in El Segundo by WAMA operations.

[4] Even though individual aircraft departures on LAX's southern runway complex routinely produce large numbers of high level noise events in El Segundo, they are of relatively short duration compared with engine run-ups which can last for ten minutes (or more). Thus, notwithstanding existing noise levels in El Segundo caused by departures or arrivals, the DEIR must evaluate single-event noise levels from anticipated engine run-ups at the WAMA using the residential standard in Section 7-2-4 of El Segundo's noise ordinance.

Section 7-2-7 of El Segundo's noise ordinance takes explicit note of ambient noise levels. A revised DEIR needs to include information about low frequency ambient noise levels in El Segundo at different times of day. The most useful information about low frequency noise levels would be characterized by single event sound levels in the 25, 31.5, 40, 50, 63 and 80 Hz one-third octave bands. If LAWA is unaware of such information, the difference between C-weighted and A-weighted single event levels measured by the airport's noise and operations monitoring systems can provide a useful approximation of low frequency sound levels.

DEIR Table 4.5-9 assumes that no evening or nighttime engine run-up operations are anticipated at the WAMA by very large, four engine aircraft. The apparent rationale for this assumption is the current absence of such activity shown in Table 4.5-5. It is unclear from the DEIR whether the failure to consider evening and nighttime run-ups by such large aircraft represents a commitment from LAWA never to permit use of the WAMA for such purposes, or whether the failure is merely an expedient one based on one airline's current operating schedule. The distinction is important because Table 4.5-11 on page 4.5-32 of the DEIR displays predicted maximum A-weighted sound levels for B-747 and A-380 aircraft at the WAMA. These are expected to reach A-weighted levels greater than 80 dB in portions of El Segundo, for single event durations as long as ten minutes (600 seconds, per Table 4.5-9). LAWA must clarify whether operations at the WAMA could include evening and nighttime run-ups of large aircraft engines, and if so, evaluate the potential impacts and consistency with LAWA's curfew on nighttime run-ups.

As a related matter, LAWA should establish automated run-up noise monitoring capability as part of the WAMA project. The automated system should be designed to identify and report run-ups occurring during run-up curfew hours (11 PM - 6 AM). Other than LAWA's virtually meaningless reliance on reporting of "enforcement actions" each quarter, LAWA currently does not report any explicit monitoring of run-ups. The DEIR, which does not even mention the curfew hours, in fact suggests that run-ups may occur at WAMA during these hours. *See, e.g.,* DEIR at Table 4.5-9 (US Airways to conduct 15.6 run-ups annually between 10 PM and 7 AM).

Ground run-ups conducted at a fixed location may be distinguished from noise produced by moving aircraft in several ways, particularly if a local noise monitoring station at the WAMA is included as part of the proposed action. These include the durations of ground run-ups (considerably greater than those of aircraft landing, takeoff, and taxiing operations); their temporal envelope (rectangular or multi-modal rather than triangular); their spectral balance (relatively greater low frequency content, as may be gauged by differences between C-weighted and A-weighted short duration time series measurements); and patterns of event

onset and offset times at multiple remote measurement sites (due to differences in sound propagation delays).

REFERENCES

Federal Interagency Committee on Noise (FICON) (**1992**) "Federal Agency Review of Selected Airport Noise Analysis Issues," Report for the Department of Defense, Washington, D.C.

Fidell, S., Silvati, L., Pearsons, K., Lind, S., and Howe, R. (**1999**) "Field study of the annoyance of low-frequency runway sideline noise," J. Acoust. Soc. Am., Vol. 106(3), Pt. 1.

Fidell, S., Pearsons, K., Silvati, L., and Sneddon, M. (**2002**) "Relationship between low-frequency aircraft noise and annoyance due to rattle and vibration," Acoust. Soc. Am., Vol. 111(4), 1743-1750.

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PROFESSIONAL RÉSUMÉ OF SANFORD FIDELL

EDUCATION:

Ph.D., Experimental Psychology, The University of Michigan, 1969
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B.A., Psychology, Trinity College, Hartford, Connecticut, 1964

PROFESSIONAL POSITIONS:

President, Fidell Associates, 2001 - present; positions held at Bolt Beranek and Newman and successor organizations: Director, Environmental Technologies Department, 1995-2001; Manager, Environmental Research and Data Systems Department, 1992-1995; Senior Manager, 1991-1992; Lead Scientist, 1989-1991; Senior Scientist, 1968-1988; Manager, Los Angeles Computer Laboratory, 1970-1982.

Lecturer, California State University, Northridge, 1969-1971; Member of the Technical Staff, Bell Telephone Laboratories, 1966; Research Assistant and Teaching Fellow, The University of Michigan, 1964-1968; Broadcast Announcing, Engineering, and Production, 1960-1968.

HONORS, PROFESSIONAL SOCIETIES, AND ADVISORY POSITONS:

Acoustical Society of America (Fellow); Associate Editor, Journal of the Acoustical Society of America; U.S. Representative to International Standards Organization Technical Advisory Group on Community Response Questionnaire Standardization (ISO/TC43/SC1/WG49), and to ISO Working Group 45 on Community Response to Noise; Acoustical Society of America Representative to I-INCE Technical Study Group 9, "Metrics for Environmental Noise Assessment and Control"; Acoustical Society of America, Technical Committee on Noise (1993-1996; 1999-2002); National Research Council Committee on Hearing, Bioacoustics and Biomechanics (CHABA); Current or past member of the American National Standards Institute, Committee on Bioacoustics, Working Groups S12-15 (Environmental Noise Measurement and Assessment), S3-51 (Auditory Magnitudes), S3-70 (Community Response to Noise Levels); American Helicopter Society, Committee on Acoustics; IEEE Power Engineering Society, Audible Sound and Vibration Subcommittee; Design Review Group for FAA's Integrated Noise Model software; BBN Outstanding Publications Awards (1989, 1991, 1996).

PROFESSIONAL RESPONSIBILITIES AND PROJECTS:

Dr. Fidell's technical career has focused on psychoacoustic research, community noise impact analysis, and aircraft noise consulting. He has directed theoretical, laboratory and field research in many areas of psychoacoustics and environmental acoustics. This research includes laboratory studies of the noisiness of impulsive sounds; the detectability, noticeabilty, warning effectiveness, and annoyance of impulsive and other high- and low-level noises; low-frequency critical bandwidths and

annoyance; speech quality, intelligibility, and vocal stress; the aversiveness and hearing damage risk of extremely high-level acoustic signals; and epidemiologic analyses of aircraft noise effects on health.

His field studies include social surveys of community and classroom response to steady-state and impulsive environmental noise; measurement and assessment of low-frequency runway sideline noise and its effects; electrophysiological and behavioral studies of noise-induced sleep disturbance; real-time studies of in-home annoyance; study of effects of aircraft noise on property values; and on-site and telephone interviews of outdoor recreationists' response to aircraft overflights. He has designed extensive highway noise measurement programs and developed statistical models to account for contributions of highway noise to community and indoor noise environments.

Dr. Fidell's human factors research has included studies of the variability of reaction time, effectiveness of computer generated auditory, visual, and tactile displays, attentional demands of warning signals, sensory scaling, signal localization and detectability, and construction of human performance test batteries. He has also assessed stress effects on performance, anthropometric and biomechanical models, and effects of vibration and g-forces on aircraft flight control.

Dr. Fidell has provided consulting services to community, airport and government agencies involved in aircraft noise controversies and assessments and disclosures of aircraft noise impacts. He has also consulted both domestically and abroad on land use planning related to aircraft noise regulation. His other consulting and development efforts have included design and execution of acoustic field measurement programs, independent audit of noise monitoring systems and contouring exercises, analysis of environmental assessment documents, production of training materials (film, video, manuals, lectures, demonstration recordings) and design of miniaturized signal processing instrumentation. He built computer-based laboratories for psychophysical experimentation and acoustic data reduction at BBN, developed novel psychophysical data collection methods, and consulted on the design of automated laboratories and data reduction systems elsewhere.

He has also provided commentary to public agencies, expert testimony in legal proceedings, and litigation support on a range of acoustical issues. These include enhancement, transcription, and speaker identification of poor quality recorded materials, analysis of evidence and documentation in environmental regulatory actions, and effects of noise exposure on communities. He is active in international standardization efforts for prediction of aircraft, rail and road noise impacts.

Dr. Fidell's software experience includes real-time programming in assembly language and creation of computer-based models of acoustic detection phenomena. Other computing experience includes technical oversight of weapons system and other software development, management of embedded microsystem projects, and design, management, marketing and application of acoustic detection, environmental assessment (geoinformation system), decision support and time series analysis programs.

Dr. Fidell's other professional activities include committee work for professional organizations, contributions to standards and criteria, and review of grant proposals, journal manuscripts, and other technical documents. He has taught statistics at California State University at Northridge, lectured on

human factors engineering and environmental noise topics at the University of Michigan and the University of California at Berkeley, and (while associated with Bell Telephone Laboratories and the University of Michigan) performed research in sensory and physiological psychology.

PAPERS AND PUBLICATIONS:

"Aircraft noise-induced awakenings are more reasonably predicted from relative than from absolute sound exposure levels", Fidell, S., Tabachnik, B., Mestre, V., and Fidell, L., J. Acoust. Soc. Am., Vol. 134, No. 5, November 2013, pp. 3645-3653.

"Relative contributions of highway and neighborhood sources to outdoor and indoor residential noise", Fidell, S., Sneddon, M., and Harrison, R., Noise Control Eng. J., Volume 61, Number 2, 1 March 2013, pp. 205-218.

"A potential role for noise complaints as a predictor of the prevalence of annoyance with aircraft noise", Fidell, S., Mestre, V., and Sneddon, M., Noise Control Eng. J. 60(1), January-February 2012, 62 - 68.

"Role of community tolerance level (CTL) in predicting the prevalence of the annoyance of road and rail noise" Schomer, P., Mestre, V., Fidell, S., Berry, B., Gjestland, T., Vallet, M., and Reid, T. J. Acoust. Soc. Am., 131(4), April, 2012, 2772-2786.

"A first principles model for estimating the prevalence of annoyance with aircraft noise exposure", Fidell, S., Mestre, V., Schomer, P., Berry, B., Gjestland, T., Vallet, M., and Reid, T., J. Acoust. Soc. Am., 130(2), August, 2011, 791-806.

"Brief on noise-induced sleep disturbance", Fidell, S., Editorial Commentary, Noise and Health, April-June 2010, Volume 12, pp. 59-60.

"The state of the art of predicting noise-induced sleep disturbance in field settings", Fidell, S., Tabachnick, B., and Pearsons, K., Noise and Health, April-June 2010, Volume 12, 77-87. See also Noise and Health Volume 12, Issue 49 (**2010)**: Comment on "The state of the art of predicting noise-induced sleep disturbance in field settings" [pg. 283] Mathias Basner, Barbara Griefahn, Keneth (*sic*) I. Hume, and Author's reply [pg. 285].

"Community Response to Noise", Fidell, S., Chapter in Handbook on Signal Processing in Acoustics, (edited by Havelock, Kuwano, and Vorländer), Springer-Verlag, New York (2008).

"Annoyance", Fidell, S., Chapter in Handbook of Noise and Vibration Control, Malcolm Crocker, Ed., John Wiley and Sons, New York (2008).

"Review of field studies of aircraft noise and sleep disturbance", David Michaud, Sanford Fidell, Karl Pearsons, Kenneth Campbell, Stephen Keith, J. Acoust. Soc. Am.,Vol. 121 (1), 32-42, January, 2007.

"Uncertainties in measuring aircraft noise exposure and predicting community response to it", Fidell, S., and Schomer, P., Noise Control Eng. J. Vol. 55(1), January-February, 2007; (see also Proceedings of International INCE Symposium "Managing Uncertainties in Noise Measurement and Prediction", Le Mans, France, June, 2005.)

"Laboratory study of the noticeability and annoyance of sounds of low signal-to-noise ratio," Sneddon, M., Pearsons, K., and Fidell, S. Noise Control Eng. J., 51 (5) September-October 2004, pp. 300-305.

"Parsimonious alternatives to regression analysis for characterizing prevalence rates of aircraft noise annoyance," Fidell, S., and Silvati, L., Noise Control Eng. J., 52 (2), March-April, 2004, pp. 56-68.

"The Schultz curve 25 years later: a research perspective", Fidell, S., J. Acoust. Soc. Am., 114(6), December, 2003, pp. 3007-3015.

"Sensitivity to prospective transportation noise exposure", Fidell, S., and Pearsons, K., Noise Control Eng. J., 51(2), pp. 106-113, March-April 2003.

"Reliable prediction of community response to noise: why you can't get there from here", Fidell, S., Proceedings of Inter•noise 2002.

"Relationship between low-frequency aircraft noise and annoyance due to rattle and vibration", Fidell, S., Pearsons, K., Silvati, L., and Sneddon, M. J. Acoust. Soc. Am., Vol. 111(4), 1743-1750, April, 2002.

"Insufficiency of spectral information as a primary determinant of the annoyance of environmental sounds" Fidell, S., Sneddon, M., Pearsons, K., Howe, R., Noise Control Eng. J., Vol. 50, No. 1, January-February 2002, pp. 12-18.

"Social survey of community response to a step change in aircraft noise exposure," Fidell, S., Silvati, L., and Haboly, E. J. Acoust. Soc. Am., pp. 200-209, Vol.111, No.1, Part 1, January, 2002.

"Relative rates of growth of annoyance of impulsive and non-impulsive noises," Fidell, S., Silvati, L., and Pearsons, K. J. Acoust. Soc. Am., pp. 576-585, Vol.111, No.1, Part 2, January, 2002.

"Effects on sleep disturbance of changes in aircraft noise near three airports," Fidell, S., Pearsons, K., Tabachnick, B. G., and Howe, R., J. Acoust. Soc. Am. Vol. 107(5), Pt. 1, pp. 2535- 2547, May, 2000.

"Field study of the annoyance of low-frequency runway sideline noise," Fidell, S., Silvati, L., Pearsons, K., Lind, S., and Howe, R. J. Acoust. Soc. Am., Vol. 106(3), Pt. 1, pp. 1408-1415, September, 1999.

"Assessment of the effectiveness of aircraft noise regulation," Fidell, S., Noise and Health, Vol. 3, pp. 17 -25, April-June, 1999.

"Noticeability of a Decrease in Aircraft Noise," Fidell, S., Silvati, L., and Pearsons, K., Noise Control Eng. J., 46(2), 49-56, April 1998.

"Community Noise," Fidell, S., and Pearsons, K.S., Vol. II, Ch. 11, Encyclopedia of Acoustics, J. Wiley and Sons, New York, 1997.

"Effects of Aircraft Overflights on Wilderness Recreationists," Fidell, S., Silvati, L., Tabachnick, B., Howe, R., Pearsons, K.S., Knopf, R.C., Gramann, J. and Buchanan, T., J. Acoust. Soc. Am., pp. 2909-2918, Vol. 100, No. 5, November 1996. See also S. Staples "Comment on 'Effects of aircraft overflights on wilderness recreationists'," J. Acoust. Soc. Am., pp. 1726-1728, Vol. 104, No. 3, September 1998; and S. Fidell, J. Gramann, R. Knopf, and K. Pearsons, "Response to comments on effects of aircraft overflights on wilderness recreationists," J. Acoust. Soc. Am., pp. 1729-1732, Vol. 104, No. 3, September 1998.

"Some Policy and Regulatory Implications of Recent Findings of Field Studies on Noise-Induced Sleep Disturbance," Fidell, S., Proceedings of Inter•noise 96, pp. 2261-2265.

"On the Noticeability of Small and Gradual Declines in Aircraft Noise Exposure Levels," Fidell, S., Silvati, L. and Pearsons, K., Proceedings of Inter•noise 96, pp. 2247-2252.

"Audibility-Related Means for Assessing Community Response to Noise From Outdoor Events," Fidell, S., Proceedings of Inter•noise 96, pp. 2001-2005.

"Assessment of Community Response to High Energy Impulsive Sounds," Fidell, S., ed., National Research Council, National Academy Press, Washington, D.C., 1996.

"Questing After the Holy Grail of Psychoacoustics...Again!" Fidell, S. Sound & Vibration, May 1996.

"New CHABA Study of Assessment of High Energy Impulsive Noise," Fidell, S., Proceedings of INTER-NOISE 95, Newport Beach, California, July 1995.

"Field Study of Noise-Induced Sleep Disturbance," Fidell, S., Pearsons, K.S., Tabachnick, B.G., Howe, R., Silvati, L., and Barber, D.S., J. Acoust. Soc. Am., Vol. 98, No. 2, Pt. 1, pp. 1025-1033,August 1995.

"Predicting Noise-Induced Sleep Disturbance," Pearsons, K.S., Barber, D.S., Tabachnick, B.G. and Fidell, S., J. Acoust. Soc. Am., Vol. 97, No. 1, pp. 331-338, January 1995.

"Deriving a Dosage-Response Relationship for Community Response to High-Energy Impulsive Noise," Fidell, S., and Pearsons, K.S., Proceedings of Sonic Boom Conference, NASA Langley Research Center, June 1994.

"Comparison of Methods of Predicting Community Response to Impulsive and Nonimpulsive Noise," Fidell, S. and Pearsons, K.S., Proceedings of Sonic Boom Conference, NASA Ames Research Center,

May 1993.

"Interpreting Findings About Community Response to Environmental Noise Exposure: What Do the Data Say?," Proceedings of the Pan-European Noise Conference, EURO-NOISE 92, Imperial College, London, September 1992.

"Noise-Induced Annoyance of Individuals and Communities," Fidell, S., and Green, D.M., Chapter 23 of Handbook of Noise Control, C. Harris, Ed., 3rd Edition, 1991.

"Variability in the Criterion for Reporting Annoyance in Community Noise Surveys," Green, D.M. and Fidell, S., J. Acoust. Soc. Am., Vol. 89, No. 1, pp. 234-243, January 1991.

"Updating a Dosage-Effect Relationship for the Prevalence of Noise-Related Annoyance," Fidell, S., Barber, D., and Schultz, T.J., J. Acoust. Soc. Am., Vol. 89, No. 1, pp. 221-233, January 1991.

"An Assessment of the Effect of Residential Acoustic Insulation on Prevalence of Annoyance in an Airport Community," Fidell, S. and Silvati, L., J. Acoust. Soc. Am., 89(1), pp. 244-247, January 1991.

"Relating the Annoyance of Aircraft Overflights to Their Audibility by Outdoor Recreationists," Fidell, S. and Silvati, L., Proceedings of NOISE-CON 90, Austin, Texas, October 1990.

"An Historical Perspective on Predicting the Annoyance of Noise Exposure," Proceedings of NOISE-CON 90, Austin, Texas, October 1990, pp. 13-22.

"Audibility and Annoyance of En Route Noise of Unducted Fan Engines," Fidell, S., Hutchings, L., Helweg-Larsen, M., and Silvati, L., Federal Aviation Administration Report FAA-90-03, April 1990.

"Laboratory Tests of Hypotheses Derived from a Decision-Theoretical Model of Noise-Induced Annoyance," Fidell, S. and Silvati, L. Proceedings of INTERNOISE 89, December 1989, pp. 887-890.

"An Acoustic Range Prediction Model for Personal Computers," Fidell, S., Secrist, L., and Harris, M., Proceedings of the 10th Annual Symposium on Ground Vehicle Signatures, Michigan Technological University, Houghton, Michigan, August, 1989.

"Feasibility of Studying Human Health Effects of Aircraft Noise in Residential Populations," Thompson, S.J. and Fidell, S., In: Berglund, B., and Lindvall, T., Eds., Noise as a Public Health Problem, Vol. 4, Swedish Council for Building Research, Stockholm, Sweden, August, 1988.

"A Theoretical Interpretation of the Prevalence Rate of Noise-Induced Annoyance in Residential Populations," Fidell, S., Schultz, T.J., and Green, D.M., J. Acoust. Soc. Am., 84(6), December, 1988, pp. 2109-2113.

"Why Is Annoyance So Hard to Understand?," Fidell, S., in Environmental Annoyance: Characterization, Measurement, and Control, H. Koelega, Ed., Elsevier Science Publishers, Amsterdam, 1987, pp. 51-56.

"Access through DataProbe," Fidell, S., Moss, P., and Fortmann, T., DEC Professional, Vol. 5, No. 10, October 1986, pp. 30-36.

"Torpedo Programs Pioneer Interactive Data Analysis," Fidell, S., Fortmann, T., Moss, P., and Means, J., Defense Electronics, Vol. 18, No. 9, September 1986.

"Closing the Gap Between Data and Analysts," Fidell, S. and Fortmann, T., Hardcopy, Vol. 14, No. 12, December 1985, pp. 139-141.

"Aircraft Noise Annoyance at Three Joint Air Carrier and General Aviation Airports," Fidell, S., Horonjeff, R., Mills, J., Baldwin, E., Teffeteller, S., and Pearsons, K., J. Acoust. Soc. Am., 77(3), March 1985, pp. 1054-1068. See also Fidell, S. and Pearsons, K., "Comments on 'The Effect of Changes in Aircraft Noise Exposure,' " J. Sound Vib., Vol. 103, No. 1, November 1985, pp. 139-140.

"Comments on Attention Demand and Recognition in the Perception of Warning Sounds and the Effects of Wearing Hearing Protection by Wilkins and Martin," Fidell, S., J. Sound Vib., 98(1), 147-148, 1985.

"Community Response to Blasting," Fidell, S., Horonjeff, R., Schultz, T., and Teffeteller, S., J. Acoust. Soc. Am., 74(3) September 1983, pp. 888-893. See also Fidell, S., and Horonjeff, R., "Reply to Bullen and Job," J. Acoust. Soc. Am., 78(2), pp. 800-801, 1985; and Kessler, F.M., J. Acoust. Soc. Am., 78(5), p. 1904, 1985.

"Community Response to Noise," Chapter 10 of Noise and Society, Jones, D. and Chapman, A. Eds., John Wiley and Sons, Ltd. Chichester, 1984.

"Effective Masking Bandwidths at Low Frequencies," Fidell, S., Horonjeff, R., Teffeteller, S., and Green, D.M., J. Acoust. Soc. Am., Vol. 73, No. 2, 628-638, February 1983.

"Behavioral Awakening as Functions of Duration and Detectability of Noise Intrusions in the Home," Horonjeff, R., Fidell, S., Teffeteller, S., and Green, D.M., J. Sound Vib., Vol. 84, No. 3, 327-336, September 1982.

"Dosage-Response Relationships for Community Annoyance with Blasting," Fidell, S. and Horonjeff, R., Proceedings of Internoise 82, San Francisco, 585-588, May 1982.

"Multimodal Signal Detection: Independent Decisions *vs*. Integration," Fidell, S., Perception and Psychophysics, 31(1), 90, March 1982.

"Comments on 'The Development of an Annoyance Scale for Community Noise Assessments,' " Fidell, S., J. Sound Vib., Vol. 78, No. 1, 299-301, September 1981.

"Scaling the Annoyance of Intrusive Sounds," Fidell, S. and Teffeteller, S., J. Sound Vib., Vol. 78, No. 2, 291-298, September 1981.

"Detectability and Annoyance of Repetitive Impulsive Sounds," Fidell, S. and Horonjeff, R., Proceedings of the 37th Annual Forum of the America Helicopter Society, No. 81-55, May 1981.

"Statistical Analyses of Urban Noise," Fidell, S., Horonjeff, R., and Green, D.M, Noise Control Engineering, Vol. 16, No. 2, 75-80, March-April 1981.

"A Modern Psychophysical Procedure for Assessing Noise-Induced Annoyance," Fidell, S., Noise Control Engineering, Vol. 14, No. 3, 127-131, May 1980.

"Adaptation to Changes in Aircraft Noise Exposure," Fidell, S., Horonjeff, R., Teffeteller, S., and Pearsons, K., Presented at 99th meeting of ASA, Atlanta, Georgia, April 1980. Invited Paper—Session O.

"Speech Interference and Community Annoyance," Fidell, S., Chapter in Community Noise, ASTM STP692, Peppin, R. and Rodman, C., Eds., American Society for Testing and Materials, November 1979.

"Predicting Annoyance from Detectability of Low Level Sounds," Fidell, S., Teffeteller, S., Horonjeff, R., and Green, D., J. Acoust. Soc. Am., Vol. 66, No. 5, 1427-1434, November 1979.

"Community Response to Noise," Fidell, S., Chapter 36 of Handbook of Noise Control, Second Edition, C. Harris, Ed., McGraw-Hill, Inc., 1979.

"Protective Noise Levels," (Condensed version of EPA Levels Document), Fidell, S., (Ed.), EPA 550/9-79-100, November 1978.

"Detectability and Effectiveness of Audible Warnings," Fidell, S., "Hazard Prevention" (Journal of the System Safety Society), pp. 6-7, November/December 1978.

"Nationwide Urban Noise Survey," Fidell, S., J. Acoust. Soc. Am., Vol. 64(1), July 1978, pp. 198-206.

"Effectiveness of Audible Warning Signals for Emergency Vehicles," Fidell, S., Human Factors, Vol. 20 (1), 19-26, February, 1978.

"Effects of Cessation of Late-Night Flights on an Airport Community," Fidell, S., and Jones G., J.

Sound Vib., Vol. 42(4), pp. 411-427, October 1975. See also "Reply to Patterson's Comments," J. Sound Vib., Vol. 47(3), pp. 449-450, August 1976.

"Industrial Noise-Effects and Control," Bruce, R., Fidell, S., and Shadley, J., Chapter III of Handbook of Dangerous Properties, N. Sax, Ed., Van Nostrand Reinhold, 1975.
"Prediction of Aural Detectability of Noise Signals," Fidell, S., Pearsons, K., and Bennett, R., Human Factors, Vol. 16(4), pp. 373-383, August 1974.

"The Noisiness of Impulsive Sounds," Fidell, S., Pearsons, K., Grignetti, M., and Green, D.M., J. Acoust. Soc. Am., Vol. 48(6):1, pp. 1304-1310, December 1970.

"Sensory Function in Multimodal Signal Detection," Fidell, S., J. Acoust. Soc. Am., Vol. 47(4):2, pp. 1009-1015, April 1970. See also Comments on Mulligan and Shaw's "Multimodal signal detection: Independent decisions *vs*. integration," Fidell, S., Perception & Psychophysics 1982, Vol. 31(1), p 90.

"The Effects of Overtraining on Reversal Learning Under Conditions of No Non-Reinforcement," Fidell, S. and Birch, J.D., Psychon. Sci., Vol. 8(1), pp. 27-28, 1967.

ORAL PRESENTATIONS (REPRESENTATIVE LIST):

"Relationships among near-real time and end-of-day judgments of the annoyance of sonic booms", Fidell, S., Horonjeff, R., and Fidell, L., Proceedings of the 165th Meeting of the Acoustical Society of America, paper 2pNSa7, June, 2013.

"Smarthone-based interviewing for assessment of sonic boom noise impacts", Horonjeff, R., and Fidell, S., Invited Paper, "Community/Environmental Noise" Session, Inter-Noise 2012, New York, August 2012.

"Quantifying the efficacy of aircraft noise regulation", Mestre, V., Schomer, P., Fidell, S., and Gjestland, T. Inter-Noise 2012, New York, August 2012

"Pilot test of smartphone-based assessment of community reaction to low-amplitude sonic booms", Fidell, S., NASA Fundamental Aeronautic Program meeting, March, 2012, Cleveland, OH.

"A New Method for Predicting the Annoyance of Transportation Noise" , Fidell, S., Mestre, V., and Schomer, P., Plenary Address, NOISE-CON 2011, Portland, OR, July 2011.

"A theory-based model of the prevalence of transportation noise annoyance", Fidell, S., Schomer, P., and Mestre, V., Invited Presentation, Session 1aNS, paper 1aNS2, 161st meeting of the Acoustical Society of America, Seattle, May, 2011.

"Technical support for Day-Night Average Sound Level (DNL) replacement metric research",

Mestre, V., Schomer, P., Fidell, S., and Berry, B. (2011) USDOT/RITA/Volpe Center Purchase Order DTRT57-10-P-80191, Requisition No. DTRT-RVT-41-1113, 2011.

"Summary of recent studies of community tolerance for aircraft noise exposure", Fidell, S., Mestre, V., and Schomer, P., Federal Interagency Committee on Aircraft Noise, March, 2011, Washington, D.C.

"Fixing the Schultz Curve (One Size Does NOT Fit All)", Fidell, S., Mestre, V., and Schomer, P., U.C. Davis Annual Symposium on Aircraft Noise and Air Quality, Tucson, March, 2011.

"Human Response to Groundborne Noise and Vibration in Buildings Caused by Rail Transit: Summary of the TCRP D-12 Study" Zapfe, J., Saurenman, H. and Fidell, S., presented at 10th International Workshop on Railway Noise, Nagahama, Japan, October, 2010.

"The case for a duration-adjusted loudness metric to assess transportation noise", Schomer, P., Fidell S., and Mestre, V. J. Acoust. Soc. Am. 128, 2469 (2010)

"Error of estimation of community reaction to aircraft noise", Fidell, S., presented at 150th meeting of the Acoustical Society of America, Session 2aNCd, Minneapolis, MN, November, 2005.

"Community response to blast noise", Nykaza, E., Pater, L., Fidell, S., and Schomer, P., presented at 150th meeting of the Acoustical Society of America, Session 3pNCa, Minneapolis, MN, November, 2005.

"Dosage-effect analysis of community response to transportation noise a quarter century after Schultz", Fidell, S., Distinguished Lecture presented at the 146th meeting of the Acoustical Society of America, Austin, TX, November 2003.

"Legal versus technical evidence of warning signal effectiveness", Fidell, S.,invited paper presented at the 146th meeting of the Acoustical Society of America, Austin, TX, November 2003.

"Rationale for noise regulation: How we got here and why we may not stay", Fidell, S., presented at 143rd meeting of the Acoustical Society of America, Session 3aNS, Pittsburgh, PA, June, 2002.

"How many meta-analyses fit on the head of a pin?" Fidell, S., presented at 140th meeting of the Acoustical Society of America, Newport Beach, December, 2000.

"Interpreting the findings of social surveys of noise-induced annoyance," Fidell, S., presented at Internoise 2000, Nice, August, 2000.

"Developing a criterion for the annoyance of low-frequency noise," Fidell, S., presented at Internoise 2000, Nice, August, 2000.

"Laboratory study of the annoyance of aircraft-induced secondary emissions," Fidell, S., Pearsons, K.,

Silvati, L., and Sneddon, M., presented at Internoise 2000, Nice, August, 2000.

"Studies of the annoyance of low-frequency aircraft noise at two civil airports," Fidell, S., Silvati, L., Pearsons, K., Howe, R., and Sneddon, M., presented at Internoise 2000, Nice, August, 2000.

"Community Response to Noise from Themed Entertainment Facilities," presented at Workshop on the Acoustics of Themed Entertainment, organized by the Acoustical Society of America, Morro Bay, CA, April, 1999.

"Social survey of the annoyance of low frequency aircraft ground noise," Fidell, S., Lind, S., and Pearsons, K., presented at the 137th Meeting of the Acoustical Society of America, Berlin, March, 1999.

"How many ways is it worth slicing the social survey data cake?" Fidell, S., presented at the 137th Meeting of the Acoustical Society of America, Berlin, March, 1999.

"Case study of the utility of extending the low-frequency range of standards for sound isolation in buildings," Lind, S., Pearsons, K., and Fidell, S., presented at the 137th Meeting of the Acoustical Society of America, Berlin, March, 1999.

"Effect of low frequency content on the rate of growth of annoyance of impulsive sounds," Fidell, S., presented at the Joint Meeting of the International Congress on Acoustics and the Acoustical Society of America, Seattle, Washington, June 1998.

"Airport Noise Management," Fidell, S., lectures presented for "Airport Systems Planning and Design" short course, Continuing Education in Engineering, U.C. Berkeley, Berkeley, CA, 1998-2012.

"Measurements of personal aircraft noise exposure of outdoor recreationists," Sneddon, M., Fidell, S., and Pearsons, K., J. Acoust. Soc. Am., Vol. 102, No. 5, Pt. 2 (November 1997).

"Comparison of noise metrics for predicting the annoyance of aircraft overflight noise," Pearsons, K., Howe, R., Sneddon, M., Silvati, L., and Fidell, S., J. Acoust. Soc. Am., Vol. 102, No. 5, Pt. 2 (November 1997).

"Noise Metrics: Purpose/Criteria," Fidell, S., presented at 12th Annual Airport Noise and Land Use Compatibility Symposium, University of California Institute of Transportation Studies, San Diego, CA, February 1997.

"The Role of Social Surveys in Airport Noise Analyses," Fidell, S., presented at Annual Conference of Airports Council International, Pacific Region, Narita Airport, Japan, May 1996.

"Relationship Between Judgments of Neighborhood Noisiness and Prevalence of Noise-Induced Annoyance," Fidell, S., presented at 131st Meeting of the Acoustical Society of America, Indianapolis,

Indiana, May 1996.

"Applications of the Noise Budget Concept," Fidell, S., presented at the 9th Airport Noise Management Seminar of the U.C. Berkeley Institute for Transportation Studies, San Diego, CA, February 1996.

"The Meaningfulness of Reductions in Aircraft Noise Exposure in Airport Neighborhoods," Fidell, S., presented at the 130th Meeting of the Acoustical Society of America, St. Louis, MO, November 1995.

"Comparison of New Methods for Assessing Community Response to High Energy Impulsive Sounds," Fidell, S., presented at the 1995 Sonic Boom Workshop, NASA Langley Research Center, Hampton, VA., September 1995.

"Review of Effects of Aircraft Noise on Health, Sleep and Residential Property Sale Prices," Fidell, S., presented at the American Association of Airport Executives 9th Annual Aircraft Noise and Land Use Workshop, Orlando, FL, August 1995.

"On the Smallest Meaningful Reduction in Aircraft Noise Exposure," Fidell, S., presented at the 25th Annual NOISE Meeting and Aviation Noise Symposium, Washington, D.C., July 1995.

"Update on Effects of Noise on People," Fidell, S., invited address presented at the 24th Annual Meeting, National Organization to Insure a Sound-Controlled Environment, College Park, GA, July 1994.

"Initial Results of Study of Aircraft Noise Effects on Residential Sleep Disturbance," Fidell, S., Pearsons, K., Howe, R., Tabachnick, B., Silvati, L., and Barber, D., presented at the 127th Meeting of the Acoustical Society of America, Massachusetts Institute of Technology, Cambridge, MA, June 1994.

"Software System for Quantitative, Observer-Based Analyses of Aircraft Noise," Reddingius, N.H., Sneddon, M.D., Smyth, J.S., and Fidell, S., presented at the 127th Meeting of the Acoustical Society of America, Massachusetts Institute of Technology, Cambridge, MA, June 1994.

"Assessing Effects of Military Aircraft Noise on Residential Property Values Near Airbases," Fidell, S., Silvati, L., Tabachnick, B., and Cook, B., presented at the 1994 NATO CCMS Symposium on Aircraft Noise Abatement Receiver Technology, Baltimore, MD, May 1994.

"Re-evaluation of Information about Community Response to Impulsive Noise Exposure," Fidell, S., presented at the 1994 NATO CCMS Symposium on Aircraft Noise Abatement Receiver Technology, Baltimore, MD, May 1994.

"Implementing Observer-Based Detectability Contours for Aircraft Noise," Reddingius, N., Sneddon, M., and Fidell, S., presented at the 1994 NATO CCMS Symposium on Aircraft Noise Abatement

Receiver Technology, Baltimore, MD, May 1994.

"Assessing Effects of Military Aircraft Noise on Residential Property Values Near Airbases," Fidell, S., Tabachnick, B., Silvati, L., and Cook, B., presented at NOISE-CON 94, Fort Lauderdale, FL, May 1994.

"Predicting Effects of Noise Exposure on Awakening," Tabachnick, Barbara G., Pearsons, Karl S., Barber, David S., and Fidell, S., presented at the Western Psychological Association, Kona, HI, April 1994.

"Design of a Large-Scale, In-Home Study of Noise-Induced Sleep Disturbance," Fidell, S., Pearsons, K.S., and Howe, R., presented at the 126th Meeting of the Acoustical Society of America, Denver, CO, October 1993.

"Geographic Representation of Noticeability of Aircraft Noise in Grand Canyon National Park," Fidell, S., Sneddon, M., Smyth, J., and Pearsons, K., presented at the 123rd Acoustical Society of America Conference, Salt Lake City, UT, May 1992.

"Cardiovascular Response to Noise with Emphasis on the Effect of Hearing Protection Devices: A Review of Epidemiologic Studies," Thompson, S.J., and Fidell, S., Hearing Conservation Conference, Cincinnati, OH, April 1992.

"A GIS-based Aircraft Noise Decision Support System," Fidell, S., and Reddingius, N., 7th Annual Grass User's Conference, Denver, CO, March 1992.

"Prediction of Community Response to Sporadic Sonic Booms," Fidell, S. and Pearsons, K. S., Sonic Boom Workshop, NASA Langley Research Center, Langley, VA, February, 1992.

"A Novel Approach to Computation of Aircraft Noise Contours," Fidell, S., Reddingius, N., Smyth, J. and Sneddon, M., Presented at the 122nd meeting of the Acoustical Society of America, Houston, Texas, October 1991.

"Portable Device for Real-Time Administration of a Branching Questionnaire," Fidell, S., Brockett, D. and McCraw, M., Presented at the 122nd meeting of the Acoustical Society of America, Houston, Texas, October, 1991.

"Audibility-Based Annoyance Prediction Modeling," Fidell, S. and Finegold, L.S., 78th Symposium of NATO AGARD the Propulsion and Energetics Panel, Bonn, Germany, October 1991.

"Observer-based Audibility Contours for Helicopter Noise," Fidell, S. presented at NATO CCMS Rotary Wing Noise Symposium, Monterey, CA, July 1991.

"Detection of Wind Noise Artifacts in Outdoor Noise Measurements," Sneddon, M., Silvati, L., Fidell,

S., and Harrison, R., presented at the 120th meeting of the Acoustical Society of America, November 1990.

"A Novel Method for Assessing the Annoyance of Aircraft Overflights in Outdoor Recreational Settings," Fidell, S., Silvati, L., and Harrison, R., presented at the 120th meeting of the Acoustical Society of America, November 1990.

"Predicting Sound Levels from Wind Speed in a Coniferous Forest," Sneddon, M., Silvati, L., and Fidell, S., presented at the 120th meeting of the Acoustical Society of America, November 1990.
"NSBIT Program: Development of Assessment System for Aircraft Noise and Research on Human Impacts Due to Aircraft Noise," Finegold, L. S., Fidell, S., Reddingius, N. H. and Kugler, B. A., presented at NOISE-CON 90, Austin, Texas, October 1990.

"Heterogeneity of Ambient Noise Distributions of Natural Origin," Silvati, L., Fidell, S., and Harrison, R., presented at the 119th meeting of the Acoustical Society of America, May 1990.

"Relative Masking Effectiveness of Self-Noise and Ambient Noise Distributions in Outdoor Recreational Settings," Fidell, S., Silvati, L., Pearsons, K., and Harrison, R., presented at the 119th meeting of the Acoustical Society of America, May 1990.

"The Concept of Audibility-Based Aircraft Noise Contours," Fidell, S., Reddingius, N., and Hodapp, S., presented at the 119th meeting of the Acoustical Society of America, May 1990.

"Contributions of Theodore Schultz to Understanding Community Response to Environmental Noise Exposure," Fidell, S., presented at the 119th meeting of the Acoustical Society of America, May 1990.

"The Influence of Non-Acoustic Factors on Judgments of the Annoyance of Noise Exposure," Fidell, S., and Green, D., presented at the 119th meeting of the Acoustical Society, May 1990.

"Adaptation of a Residential Dosage-Response Relationship for Aircraft Noise Annoyance to the Outdoor Recreational Setting," Hartmann, L., and Fidell, S., presented at the 119th meeting of the Acoustical Society of America, May 1990.

"Predicting the Audibility and Annoyance of Unducted Fan Engines," Fidell, S., Secrist, L., and Helweg-Larsen, M., presented at the FAA/NASA En Route Noise Symposium, Hampton, Virginia, September, 1989.

"Revision of a Dosage-Effect Relationship for the Prevalence of Noise-Related Annoyance," presented at 117th meeting of Acoustical Society of America, May 1989.

"The Marriage of GRASS and ORACLE," Fidell, S., Harris, M., and Reddingius, N., paper presented at 5th Annual GRASS User's Group Meeting, Champaign, IL, October, 1988.

"Auditory Displays and Acoustic Warning Signals," Lectures given at University of Michigan Human Factors Short Course, Ann Arbor, MI, August, 1988, 1989, 1990.

"United States Air Force Assessment System for Aircraft Noise," Long, G., and Fidell, S., paper presented at NATO-CCMS Pilot Study on Aircraft Noise, Williamsburg, Virginia, April 1988.

"A Theoretical Model of the Annoyance of Individual Noise Intrusions," Fidell, S., Green, D.M., and Pearsons, K., paper presented at the 114th meeting of the Acoustical Society of America, November 1987.

"A Theoretical Interpretation of a Dosage-Effect Relationship for the Prevalence of Annoyance in a Community," Fidell, S., Green, D.M., and Schultz, T. J., paper presented at 114th meeting of the Acoustical Society of America, November 1987.

"Distributed Processing for Real-Time Data Collection, Display, and Analysis," Fidell, S., Moss, P., Fortmann, T., Sneddon, M., and Milligan, S., paper presented at International Telemetering Conference, San Diego, California, October 1987.

"An Interactive Graphic System for Acquiring and Analyzing Proportional Bandwidth Acoustic Data," Sneddon, M., and Fidell, S., paper presented at 112th Meeting of the Acoustical Society of America, December 1986.

"Community Adaptation to Changes in Noise Exposure," Horonjeff, R., and Fidell, S., paper presented at Summer Meeting of Transportation Research Board Committee on Transportation-Related Noise and Vibration, Los Angeles, California, June 1984.

"Effective masking bandwidths at low frequencies", Fidell, S., Horonjeff, R., Teffeteller, S., and Green, D.M., J. Acoust Soc. Am. (73) 2, 628 – 638.

"Some Similarities in Community Response to Aircraft and Road Traffic Noise," Fidell, S., paper presented at 106th Meeting of the Acoustical Society of America, November 1983.

"The State of the Art of Assessment of Noise Induced Annoyance," Fidell, S., invited paper presented at 102nd meeting of the Acoustical Society of America, December 1981.

"Approximating Low Frequency Masking Bandwidths with One-Third Octave Bands," Horonjeff, R., Fidell, S., and Green, D., presented at the 100th meeting of the Acoustical Society of America, November 1980.

"Validation of Annoyance Scales for Social Surveys of Community Reaction to Noise Exposure," Fidell, S., presented at the 99th meeting of the Acoustical Society of America, April 1980.

"Room Acoustics and Mobility of the Visually Impaired," Fidell, S., presented at the 98th meeting of

the Acoustical Society of America, November 1979.

"Effects of Temporal Variability of Urban Noise of Signal Detectability," Fidell, S., invited paper presented at the 98th meeting of the Acoustical Society of America, November 1979.

"Effective Masking Bandwidths at Low Frequencies," Fidell, S., Horonjeff, R., Teffeteller, S., and Green, D., presented at the 97th meeting of the Acoustical Society of America, June 1979.

"Evaluation of Effectiveness of Residential Fire Protection System Audible Warning Signals," Fidell, S., presented at the 83rd annual meeting of the National Fire Protection Association, May 1979.

"A New Procedure for Simultaneous Comparison of the Annoyance of Multiple Noise Sources," Fidell, S., Horonjeff, R., and Pearsons, K., presented at the 96th meeting of the Acoustical Society of America, November 1978.

"Signal to Noise Ratios for Emergency Vehicle Alarms," Fidell, S., presented at Workshop on Optimization of Emergency Audible Warning Devices, U.S. Department of Transportation, Transportation Systems Center, Cambridge, Massachusetts, June 1978.

"Acoustic Detectability of Helicopters from Within Armored Vehicles," Fidell, S., presented at Human Factors Society Symposium "Human Factors in Southern California," Northridge, California, January 1979.

"The Relationship Between Community Annoyance and Speech Interference," Fidell, S., presented at the 94th meeting of the Acoustical Society of America, December 1977.

"The Relationship Between Detectability and Annoyance of Low Level Signals," Fidell, S., presented at the 94th meeting of the Acoustical Society of America, December 1977.

"Assessment of Noise Impact in Transportation Planning," Fidell, S., presented at the 92nd meeting of the Acoustical Society of America, November 1976.

"Signal Detection in Time Varying Noise Backgrounds," Fidell, S., presented at the 92nd meeting of the Acoustical Society of America, November 1976.

"The Primate Experience," Fidell, S., presented at the 56th meeting of the Western Psychological Association, April 1976.

"Detectability and Effectiveness of Automotive Warning Signals," Fidell, S., presented at the 90th meeting of the Acoustical Society of America, November 1975.

"On the Meaningfulness of Noise Measurements in Audio Systems," Fidell, S., presented at the 51st Convention of the Audio Engineering Society, May 1975.

"A Review of Recent Community Noise Research in the U.S.A.," Fidell, S., Keynote Address presented at Noise, Shock and Vibration Conference, Melbourne, Australia, May 1974.

"Effects of Discontinuation of Nocturnal Aircraft Noise," Fidell, S., and Jones, G., presented at the 86th meeting of the Acoustical Society of America, November 1973.

"Speech Intelligibility in the Presence of Time Varying Traffic Noise," Pearsons, K. and Fidell, S, presented at the Human Factors Society Meeting, Washington, D.C., October 1983.

"A Novel Method for Assessing Noise-Induced Annoyance in the Home," Fidell, S., presented at the 1973 meeting of the NAS-NRC Committee of Hearing, Bioacoustics, and Biomechanics (CHABA), Washington, D.C., April 1973.

"Noise and Noise Levels Affecting the Human Sensory System," Bruce, R., and Fidell, S., presented at the International Pollution Engineering Exposition and Congress, Cleveland, Ohio, December 1972.

Panelist, Hearings on Psychological and Physiological Effects of Noise on Man, Environmental Protection Agency, Boston, Massachusetts, October 1971.

"Prediction of Aural Detectability in Varying Noise Backgrounds," Fidell, S., and Pearsons, K. S., presented at the 82nd meeting of the Acoustical Society of America, October, 1971.

"Sensory Interaction in Signal Detection," Fidell, S., presented at the 78th meeting of the Acoustical Society of America, November, 1969.

SPONSORED TECHNICAL REPORTS (REPRESENTATIVE LIST):

"Pilot Test of a Novel Method for Assessing Community Response to Low-Amplitude Sonic Booms," Fidell, S., Horonjeff, R., and Harris, M., September, 2012, NASA/CR -2012 - 217767.

"Ground-Borne Noise and Vibration in Buildings Caused by Rail Transit" Zapfe, J., Saurenman, H., and Fidell, S., Transit Cooperative Research Program, Transportation Research Board of the National Academies, September, 2009. (http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_48.pdf)

"Design Recommendations for an Impulse Noise Complaint Study," Fidell, S., and Schomer, P., Fidell Associates report prepared for U.S. Army Construction Engineering Research Laboratory, Champaign, IL, September, 2004.

"Monitoring of Aircraft Noise in the Owyhee and Jarbidge MOAs" Fidell, S., White, P, and Sneddon, M., Fidell Associates report prepared for SAIC, Boise, ID, September, 2003.

"Review of Calendar Year 2000 Noise Exposure Contours for O'Hare International Airport," Fidell,

S., Sneddon, M., and Silvati, L., Fidell Associates Report 0103, November, 2001.

"Social Survey of Aircraft Noise Impacts on Residents of Wesley Homes," Fidell, S., and Fidell, L., Fidell Associates Report 0102, November, 2001.

"Review of SFO Aircraft Noise, Flight Tracks, and Complaint Records," Fidell, S., Howe, R. R., Pearsons, K. S., and Silvati, L., BBN Report 8279, November, 2000.

"Interim Report of Findings: Benchmarking ANMS Noise Event Classification Performance," Sneddon, M., and Fidell, S., BBN Report 8275, March, 2000.

"Study of the Levels, Annoyance and Potential Mitigation of Backblast Noise at San Francisco International Airport," Pearsons, K., Fidell, S., Silvati, L., Sneddon, M., and Howe, R. BBN Report 8257, January 2000.

"Empirical Study of South San Francisco's Aircraft Noise Insulation Program," Fidell, S., and Silvati, L., BBN Report 8256, May, 1999.

"Review of 1997 Noise Exposure Contours for O'Hare International Airport," Fidell, S., Silvati, L., and Lind, S.J., BBN Report 8243, January, 1999.

"Sound Insulation Requirements for Mitigation of Aircraft Noise Impacts on Highline School District Facilities," Lind, S., Pearsons, K., and Fidell, S., BBN Report 8240, November 1998.

"Review of ANMS Flight Track Processing," Sneddon, M., and Fidell, S., BBN Report 8149, October, 1998.

"Field Studies of Habituation to Change in Nighttime Aircraft Noise and of Sleep Motility Measurement Methods," Fidell, S., Howe, R., Tabachnick, B., Pearsons, K., Silvati, L., Sneddon, M., and Fletcher, E., BBN Report 8195, March 1998.

"Use of Airport Noise Complaint Files to Improve Understanding of Community Response to Aircraft Noise," Fidell, S., and Howe, R., BBN Report 8215, NASA Contractor Report CR-1998-207650, NASA Langley Research Center, Hampton, Virginia, February 1998.

"Noise Reduction Measurements at the Goldenrod Showboat," Lind, S., Fletcher, E., and Fidell, S., BBN Report 8224, January 1998.

"Sound Transmission Loss Measurements at Five Sites in Richfield, Minnesota," Lind, S., Fidell, S., and Fletcher, E., BBN Report 8220, January 1998.

"Relative Rates of Growth of Annoyance of Impulsive and Non-Impulsive Noises," Fidell, S., Silvati, L. Pearsons, K., Howe, R., and Lind, S., BBN Report 8213, December 1997.

"Classification of Aircraft Noise Events Using One-Third Octave Band Information," Sneddon, M., and Fidell, S., BBN Report 8210, December 1997.

"Comparison of Predictors of the Annoyance of Commuter, Stage II, and Stage III Aircraft Overflights as Heard Outdoors," Pearsons, K., Howe, R., Sneddon, M., Silvati, L., and Fidell, S., NASA Contractor Report CR-97-205812, December, 1997, NASA Langley Research Center, Hampton, VA.

"Field Study of the Annoyance of Low Frequency Runway Sideline Noise," Fidell, S., Silvati, L., Pearsons, K., Lind, S., and Howe, R., BBN Report 8211, October, 1997.

"Report of an Acoustic Analysis," Fidell, S., BBN Report 8203, June 1997.

"An Analysis of Anticipated Low Frequency Aircraft Noise in Richfield Due to Operation of a Proposed North-South Runway at MSP," Lind, S., Pearsons, K., and Fidell, S., BBN Report 8196, May 1997.

"Comparison of Place and Personal Aircraft Noise Measurements in an Outdoor Recreational Setting," Sneddon, M., Howe, R., Lind, S., and Fidell, S., BBN Report 8189, April 1997.

"Comparison of Public Law 100-91 Reports to Congress," Tabachnick, B., Fidell, S., and Pearsons, K., BBN Report 8133, December 1996.

"Laboratory Study of the Noticeability and Annoyance of Sounds of Low Signal-to-Noise Ratio," Sneddon, M., Howe, R., Pearsons, K., and Fidell, S., NASA Contractor Report 201613, NASA Langley Research Center, Hampton, VA, November 1996.

"Effects of Military Aircraft Noise on Residential Property Values," Fidell, S., Tabachnick, B., and Silvati, S., BBN Report 8102, October, 1996.

"Social Survey of Community Preferences for Aircraft Noise Mitigation Measures," Fidell, S., Silvati, L, and Howe, R., BBN Report 8172, August 1996.

"Analysis of First Year's Performance of Denver International Airport's Aircraft Noise and Operations Monitoring System," Fidell, S., and Pearsons, K., BBN Report 8168, July, 1996.

"Comparison of the Performance of Noise Metrics as Predictors of the Annoyance of Stage II and Stage III Aircraft Overflights," Pearsons, K., Howe, R., Sneddon, M., and Fidell, S., NASA Contractor Report 198348, NASA Langley Research Center, Hampton, VA, July 1996.

"An Assessment of Commuter Aircraft Noise Impact," Fidell, S., Pearsons, K., Silvati, L., and Sneddon, M., NASA Contractor Report 198316, NASA Langley Research Center, Hampton, VA, June 1996.

"Noise-Induced Sleep Disturbance in Residences Near Two Civil Airports," Fidell, S., Howe, R., Tabachnick, B., Pearsons, K., and Sneddon, M., NASA Contractor Report 198252, NASA Langley Research Center, Hampton, VA, December 1995.

"Social Survey of Community Response to Noise Exposure Near Vancouver International Airport," Fidell, S., Silvati, L., and Fletcher, E., BBN Report 8105, Canoga Park, CA 91303-2853, October 1995.

"Analysis of Compliance of Denver International Airport's Aircraft Noise and Operations Monitoring System with Inter-Governmental Agreement of 21 April 1988," Fidell, S., BBN Report 8015, October 1994.

"Noise-Induced Sleep Disturbance in Residential Settings," Fidell, S., Pearsons, K., Howe, R., Tabachnick, B., Silvati, L. and Barber, D., BBN Report 7932, November 1993.

"Software Requirements Specification for the National Park Service Overflight Decision Support System," Reddingius, N. H., and Fidell, S., BBN Report 7681, February 1992.

"Evaluation of the Effectiveness of SFAR 50-2 in Restoring Natural Quiet to Grand Canyon National Park," Fidell, S., Pearsons, K. S., and Sneddon, M. D., BBN Report 7197, February 1992.

"Study Designs for Quantification of Response Bias and Ambient Noise Effects on Noise-Induced Annoyance," Fidell, S., Tabachnick, B., and Barber, D., NSBIT Technical Operating Report No. 21, June 1990.

"Relationship Between Short and Long Term Annoyance of Noise Exposure," Fidell, S., Green, D. and Sneddon, M., NSBIT Technical Operating Report No. 22, July 1990.

"Requirements and Conceptual Design For a Miniaturized, Computer-Based System For Real-Time Monitoring of Environmental Noise Exposure and Human Response," Wagoner, J., and Fidell, S., BBN Report 7211, March 1990.

"A Research Program Plan For Public Law 100-91 Aircraft Overflight Management Studies," Fidell, S., National Park Service Report NPOA-90-1, March 1990.

"Acoustic Measurements of Sonic Booms and Ambient Sound Levels in the Selway-Bitterroot Wilderness Area," Fidell, S., Silvati, L., and Pearsons, K., BBN Report 7196, January 1990.

"Suitability of Aircraft Noise Contouring Methods For Public Law 100-91 Analyses," Fidell, S., and Reddingius, N., BBN Report 7233, January 1990.

"Updating a Dosage-Effect Relationship for the Prevalence of Annoyance Due to General

Transportation Noise," Fidell, S., Barber, D., and Schultz, T.J., U.S. Air Force Technical Report HSD-TR-89-009, December 1989.

"Feasibility of Epidemiologic Research on Nonauditory Health Effects of Aircraft Noise Exposure," Thompson, S., Fidell, S., and Tabachnick, B., U.S. Air Force Technical Report HSD-TR-89-007, December 1989.

"Effect of Additional Flight Operations at LGB on the Prevalence of Aircraft Noise Annoyance," Fidell, S., and Silvati, L. BBN Report 7141, September 1989.

"A Strategy for Studying Health Effects of Residential Aircraft Noise Exposure," Fidell, S., and Thompson, S. BBN Report 7044, September, 1989.

"Initial Development of an Assessment System for Aircraft Noise (ASAN)," Fidell, S., Reddingius, N., Harris, M., and Kugler, B.A., U.S. Air Force Technical Report HSD-TR-89-010, August 1989.

"Empirical Tests of Hypotheses Derived from a Decision-Theoretical Model of Noise-Induced Annoyance," Fidell, S., Silvati, L., and Secrist, L., BBN Report 6739, August 1989.

"Development of Version 7 of an Acoustic Detection Range Prediction Model (ADRPM-7)," Fidell, S., Secrist, L., Harris, M., and Sneddon, M., U.S. Army Tank-Automotive Command Technical Report 13397, March 1989.

"A Systematic Interpretation of a Dosage-Effect Relationship for the Prevalence of Noise-Induced Annoyance," Fidell, S., and Green, D.M., U.S. Air Force Technical Report HSD-TR-89-0007, January 1989.

"Development of Version 7 of an Acoustic Detection Range Prediction Model (ADRPM-7)," Fidell, S., Secrist, L., Harris, M., and Sneddon, M., BBN Report 6737, September, 1988.

"A Strategy for Understanding Noise-Induced Annoyance," Fidell, S., Green, D., Schultz, T.J., and Pearsons, K., U.S. Air Force Technical Report HSD-TR-87-013, August 1988.

"A Rationale and Plan for Developing Improved Means of Predicting Aircraft Noise Annoyance," Fidell, S., and Green, D., BBN Report 6751, June 1988.

"Preliminary Analysis of the Audibility and Annoyance of Noise Produced by Unducted Fan Aircraft Engines," Fidell, S., and Secrist, L., BBN Report 6504, September 1987.

"Detailed Design Specifications for a Prototype Assessment System for Aircraft Noise (ASAN)," Fidell, S., Harris, M., and Reddingius, N., BBN Report 6499, October 1987.

"Research Plan on the Effects of Aircraft Noise and Sonic Booms on Humans," Fidell, S., and Kugler,

B.A., BBN Report 6495, September 1987.

"Feasibility of Countermeasures to Reduce the Vulnerability of Helicopters to Acoustic Sensing Systems (U)," Fidell, S., Mucci, R., and Briscoe, H., BBN SECRET Report 6053, February 1987.

"Cockpit Automation Technology," Pew, R., Olstad, M., Sherman, H., and BBN Staff, BBN Report 6133, June 1986.

"Attitudinal Survey Conducted in Conjunction with Test of Scatter Plan at Washington National Airport," Fidell, S., Horonjeff, R., Teffeteller, S., and Tomooka, S., BBN Report 5547, May 1984.

"A Computer Program For Predicting Audibility of Noise Sources," Horonjeff, R., and Fidell, S., U.S. Air Force Flight Dynamics Laboratory, AFWAL Technical Report 83-3115, October 1983.

"Preliminary Investigation of the Aversiveness of High Level Sounds," Pearsons, K., and Fidell, S., BBN Report 5312, July 1983.

"The Detectability of Repetitive Periodic Impulses," Horonjeff, R., Fidell, S., and Green, D., BBN Report 5314, May 1983.

"Survey of Opinions About Living Conditions in Two Neighborhoods Near Greater Pittsburgh International Airport," Fidell, S., BBN Report 5075, May 1983.

"Preliminary Selection of Signals for Acoustic Egress System," Pearsons, K., and Fidell, S., BBN Report 5060, November 1982.

"Evaluation of Noise Exposure and Community Response Due to Temporary Reinstitution of Night Landings at Westchester County Airport," Baldwin, E., and Fidell, S., BBN Report 5083, July 1982.

"Community Response to Three Noise Abatement Departure Procedures at John Wayne Airport," Fidell, S., Mills, J., Teffeteller, S., and Pearsons, K., BBN Report 4743, June 1982.

"A Graphic Method for Predicting Audibility of Noise Sources," Fidell, S., and Horonjeff, R., U.S Air Force Wright Aeronautical Laboratories, Flight Dynamics Laboratory, AFWAL-TR-82-3086, October 1982.

"Technical Review of Decision Making Process and Supporting Documents of 16 December, 1980 Ruling on Alton Coal Field Petition," Dietrich, C.W., Fidell, S., Rubin, M., and Pearsons, K., BBN Report 4846, April 1982.

"Community Sensitivity to Changes in Aircraft Noise Exposure," Fidell, S., Horonjeff, R., Teffeteller, S., and Pearsons, K., National Aeronautics and Space Administration CR-3490, December 1981.

"Measurements of the Impulsiveness and Annoyance of Compression-Release Engine Brake Noise," Fidell, S., and Horonjeff, R., BBN Report 4550, September 1981.

"Temporal Integration in Low Frequency Auditory Detection," Fidell, S., Horonjeff, R., Teffeteller, S., and Green, D.M., U.S. Army Applied Technology Laboratory Technical Report USAAVRADCOM TR 81-D-8, March 1981.

"Revision of Acoustic Detection Range Prediction Model Based on Psychoacoustic Study of Low Frequency Masking," Fidell, S., Horonjeff, R., Teffeteller, S., and Green, D.M., U.S. Army Tank-Automotive Command, Research and Development Center, Technical Report 12543, December 1980.

"A Critical Review of Time-of-Day Weighting Factors for Cumulative Measures of Community Noise Exposure," Fidell, S., and Schultz, T., BBN Report 4216, March 1980.

"Scaling Annoyance for Social Surveys of Community Reaction to Noise Exposure," Fidell, S., and Teffeteller, S., BBN Report 4211, February 1980.

"Feasibility Analysis for a New Computer System," Nickerson, R., Fidell, S., Kalikow, D., Nuthmann, C., Feehrer, C., Selfridge, O., and Vittal, J., BBN Report 4030, January 1980.

"Initial Study of the Effects of Transformer and Transmission Line Noise on People, Volume III; Community Reaction," Fidell, S., Teffeteller, R., and Pearsons, K., Electric Power Research Institute Report EA-1240, December 1979.

"Low Frequency Acoustic Detection Research in Support of Human Detection Range Prediction," Fidell, S., Horonjeff, R., and Green, D., U.S. Army Applied Technology Laboratory Technical Report USARTL-TR-79-25, AD #A080579, October 1979.

"Noticeability and Annoyance of Electrical Power Transformers in Urban Noise Backgrounds," Pearsons, K., Fidell, S., Horonjeff, R., and Teffeteller, S., BBN Report 4004, August 1979.

"Evaluation of the Detectability of Residential Fire Alarms," Myles, M., and Fidell, S., BBN Report 3833, June 1978.

"Effectiveness of Audible Warning Devices on Emergency Vehicles," Fidell, S., Potter, R., Myles, M., and Keast, D., U.S. Department of Transportation, Report DOT-TSC-0ST-770-39, August 1977.

"Speech Levels in Various Noise Environments," Pearsons, K., Bennett, R., and Fidell, S., U.S. Environmental Protection Agency, Environmental Health Effects Research Series, EPA-60011-77-025, May 1977.

"The C3 System User," Nickerson, R.S., Adams, M.J., Pew, R.W., Swets, J.A., Fidell, S., Feehrer, C.E., Yntema, D.B., and Green, D.M., BBN Report 3459, May 1977.

"Prediction of Acoustic Detection Ranges for Multiple Sources and Spatially Distributed Detectors," Horonjeff, R., and Fidell, S., U.S. Army Tank-Automotive Research and Development Command Technical Report 12240, AD #B0-23087L, January 1977.

"Feasibility of Acoustic Detection Within Armored Vehicles," Fidell, S., Starr E., and Green, D.M., U.S. Army Tank Automotive Research and Development Command Technical Report 12239, AD #B023313L, January 1977.

"Transportation Facility Proximity Impact Assessment," Stutsman, J., Holder, S., and Fidell, S., California Department of Transportation, Report BAH-GA-BBN-76-01, March 1976.

"Test Plan for Aircraft Runup Noise Penalty Evaluation," Fidell, S., U.S. Air Force Aerospace Medical Research Laboratory, TR-75-110, March 1976.

"Behavioral Analysis of Workers and Job Hazards in the Roofing Industry," Prather, K., Crisera, R., and Fidell, S., Department of Health, Education and Welfare, Publication No. (NIOSH) 75-176, June 1975.

"Prediction of Acoustic Detectability," Fidell, S., and Bishop, D., U.S. Army Tank Automotive Command Technical Report 11949, AD #B000324L, August 1974.

"Quiet Highway Design," 20 minute, color and sound 16mm film, February 1974.

"Effect of Cessation of Late-Night Landing Noise on Sleep Electrophysiology in the Home," Pearsons, K., Fidell, S., and Bennett, R., National Aeronautics and Space Administration, CR-132543, December 1974.

"Time Varying Highway Noise Criteria," Pearsons, K.S., Bennett, R.L., and Fidell, S., BBN Report 2739, November 1974.

"Feasibility of a Novel Technique for Assessing Noise-Induced Annoyance," Fidell, S., and Jones, G., Department of Transportation Report DOT-TST-74-3, NTIS PB-225334, September 1973.

"The Effects of Aircraft Noise on Sleep Electrophysiology as Recorded in the Home," Pearsons, K., Fidell, S., and Bennett, R., National Aeronautics and Space Administration, NAS1-9559-19, August 1973.

"Predicting Aural Detectability of Aircraft in Noise Backgrounds," Fidell, S., Pearsons, K., and Bennett, R., U.S. Air Force Flight Dynamics Laboratory Technical Report AFFDL-TR-72-16, July 1972.

"Aircraft Noise Analyses for the Existing Air Carrier System," Galloway, W., Simpson, M.,

Reddingius, N., Bishop, D., and Fidell, S., BBN Report 2218, September 1972.

"Highway Noise—A Field Evaluation of Traffic Noise Reduction Measures," Vol. 3, Pearsons, K., Bennett, R., and Fidell, S., BBN Report 2209, June 1972.

"Noise from Construction, Home Appliances, and Building Equipment," Franken, P., Bender, E., and Fidell, S., BBN Report 2192, September 1971.

"Study of the Effects of the Doppler Shift on Perceived Noisiness," Pearsons, K., Bennett, R., and Fidell, S., National Aeronautics and Space Administration, CR-1779, July 1971.

The Schultz curve 25 years later: A research perspective[a)]

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The contemporary technical rationale for assessing effects (''impacts'') of transportation noise on communities rests in large part on a purely descriptive dosage-effect relationship of the sort first synthesized by Schultz [J. Acoust. Soc. Am. **64**, 377–405 (1978)]. Although U.S. federal adoption of an annoyance-based rationale for regulatory policy has made this approach a familiar one, it is only one of several historical perspectives, and not necessarily the most useful for all purposes. Last reviewed by the U.S. Federal Interagency Committee on Noise (FICON) 10 years ago, the accuracy and precision of estimates of the prevalence of a consequential degree of noise-induced annoyance yielded by functions of noise exposure leave much to be desired. This tutorial article traces the development of the dosage-effect relationship on which FICON currently relies, in a wider historical context of efforts to understand and predict community response to transportation noise. It also identifies areas in which advances in genuine understanding might lead to improved means for predicting community response to transportation noise.
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I. INTRODUCTION

A quarter of a century ago, the *Journal of the Acoustical Society of America* published what proved to be an influential article on community reaction to transportation noise exposure (Schultz, 1978). Schultz demonstrated that the results of social surveys conducted in disparate cities and languages on the effects of aircraft and surface transportation noise could be interpreted in common terms, and usefully summarized in the form of a dosage-effect relationship. Successors to this relationship are relied upon today to characterize noise impacts for purposes such as planning transportation infrastructure projects, and for determining eligibility for federal funding of large-scale noise mitigation projects.

Schultz's 1978 study was a major work of scholarship and technical insight that began the integration of a scattered world literature on community-level noise effects. It helped to promote a measure of time-weighted average noise exposure as a primary predictor of community reaction to noise, established the current paradigm for analysis of such effects, served as the impetus for considerable subsequent research, and offered the prospect of a much-prized technical rationale for environmental noise regulation.

Although Schultz's approach eventually came to be regarded as the conventional wisdom, his paper remained controversial for years (*cf.* Kryter, 1982). Initially, many took issue with details of his conversions of diverse noise metrics into Day-Night Average Sound Level (abbreviated DNL and expressed symbolically in mathematical expressions as L_{dn}) or found fault with his adoption of self-reported annoyance (rather than speech or sleep interference, or complaints) as the dependent variable of his dosage-effect relationship. Others objected to Schultz's rejection of a measure of central tendency of annoyance as a dependent variable, and to his preference for a single relationship to summarize reaction to both aircraft and surface transportation sources. Schultz and others eventually suggested alternate fitting functions, reanalyzed and updated the corpus of findings available for analysis, identified source-specific dosage-effect relationships, and attempted to develop theory-based underpinnings for Schultz's empirical relationship.

Enough has been learned in the years following publication of Schultz's pioneering work on community reaction to transportation noise to warrant reexamination of the research and regulatory paradigms that followed from it. Before doing so, however, it is helpful to review (1) the context in which Schultz conducted his original analyses, and (2) subsequent research findings, understandings, and practical applications of Schultz's work.

II. CONTEXT OF SCHULTZ'S ANALYSIS

The origins of modern legislative and regulatory concern with transportation noise exposure in the United States can be traced to the introduction of jet aircraft at military bases in the early 1950s, to the start of passenger jet service in 1958, and to development of the national highway network in the 1960s.[1] The higher levels and the distinctive features of the noise emissions of jet aircraft *vis-a-vis* those of propeller-driven aircraft, as well as expansion in numbers of flight operations, elicited strongly adverse reactions in communities near military airbases and civil airports. By the 1970s, increased highway traffic noise led to large-scale studies of relationships among traffic flow parameters, noise emissions, and community reaction.

The U.S. Noise Control Act of 1972 was a legislative acknowledgment of national concern with the effects of residential noise exposure. The Environmental Protection Agency's ''Levels Document'' (EPA, 1974), a product of the Noise Control Act, identified a time-weighted average measure of sound level (eventually standardized as DNL) as a convenient expression of the total environmental noise of

[a)]Review and tutorial paper.

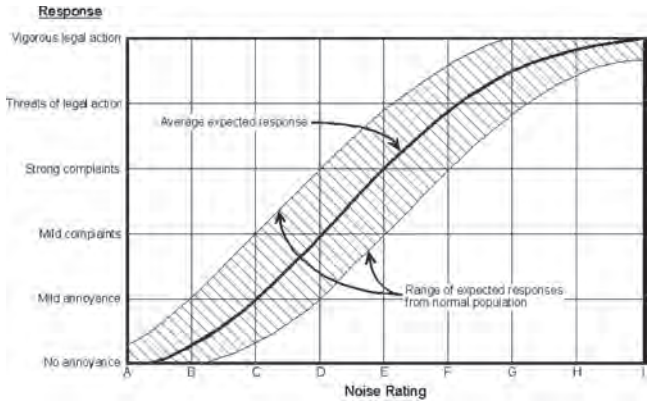

FIG. 1. Relationship between community noise rating and predicted behavioral consequences of environmental noise exposure, adapted from Fig. D-16 of Appendix D of ''Levels Document'' (EPA, 1974).

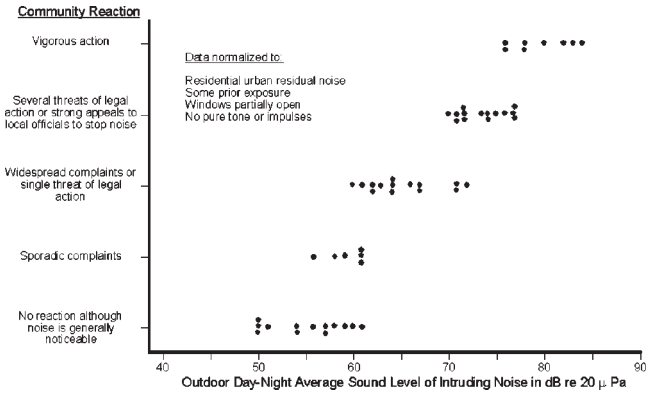

FIG. 2. Community reaction to intrusive noises of many types as a function of the outdoor Day-Night Average Sound Level of the intruding noise. (Adapted from Fig. D-7 of EPA Report 550/9-74-004, ''Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety,'' March, 1974.)

communities.[2] Schultz's work started in 1976, under contract to the U.S. Department of Housing and Urban Development. HUD sought to develop consistent criteria for approving federal financial participation in housing projects in neighborhoods with varying degrees of environmental noise exposure.

At the time, the state of the art of assessing the habitability of housing in noisy areas had advanced little from the pioneering work on ''community noise ratings'' conducted throughout the 1950s for the U.S. Air Force and for the Port of New York Authority (*e.g.*, Stevens and Pietrasanta, 1957; Beranek *et al.*, 1959; Galloway and Pietrasanta, 1963). The early approach to characterizing adverse community reaction to aircraft noise focused on prediction of its overt (complaint and similar) behavioral consequences. Rosenblith *et al.* (1953) and Stevens *et al.* (1955) devised a framework for interpreting the findings of 20-odd case studies of community reaction to aircraft noise that characterized community reaction in terms of ''sporadic'' through ''widespread'' complaints, ''threats of community action,'' and ''vigorous community action.'' Figure 1 summarizes the relationship that Rosenblith *et al.* inferred from their case studies.

A ''Community Noise Rating'' (CNR) value was determined by first estimating a ''noise level rank'' from a set of idealized spectral shapes for community noise. These shapes were derived from laboratory findings about the loudness of sounds in different frequency bands. The noise level rank was modified (normalized to standard conditions) by site-specific factors such as ambient noise levels, time of day and year, tonal content, dynamic range of noise intrusions, and novelty of exposure.

CNR-based assessment of community reaction to environmental noise required a detailed case study, involved more-or-less arbitrary judgments about the detailed nature of noise exposure, and made no effort to account for the range of reactions associated with the same rating level (for example, from ''sporadic complaints'' to ''threats of community action'' at rating ''E'') in different communities.[3] The CNR scheme was purely descriptive, and identified no mechanisms by which noise exposure was transformed into complaints.

Despite its limitations, CNR remained influential for two decades after its initial formulation, as is recognizable in Fig. D-7 of EPA's 1974 Levels Document (reproduced above as Fig. 2). CNR evolved in the 1960s into an increasingly simplified Composite Noise Rating (CNR-2), and eventually into a Day-Night Average Sound Level (modeled on California's ''Community Noise Equivalent Level,'' which included 5- and 10-dB evening and nighttime weightings).

As late as EPA's ''Levels Document'' (pp. 20 *et seq.*), non-health-related effects of noise on people were addressed under the rubric of ''Activity Interference/Annoyance.'' The ''activity interference'' portion of this concern referred to masking of communication by environmental noises, as indicated by references to ''listening to a desired sound, such as speech or music'' and ''interference with speech intelligibility.'' The explanatory appendices to EPA's Levels Document are replete with further evidence that annoyance was not the effect of principal concern in identification of protective noise levels. Figures D-7, D-8, and D-16 (of which Figs. D-7 and D-16 are reproduced here as Figs. 2 and 3) of Ap-

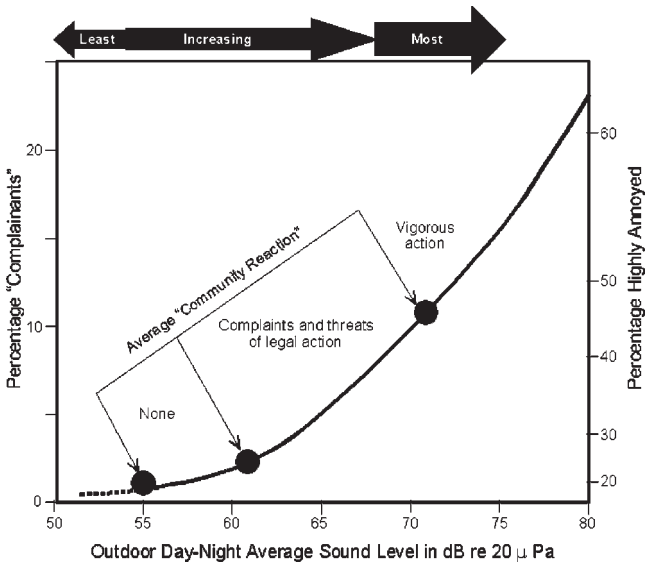

FIG. 3. Illustration of vestigial influence of CNR methodology on assessment of community reaction to aircraft noise exposure in EPA's 1974 ''Levels Document'' (Fig. 16, Appendix D).

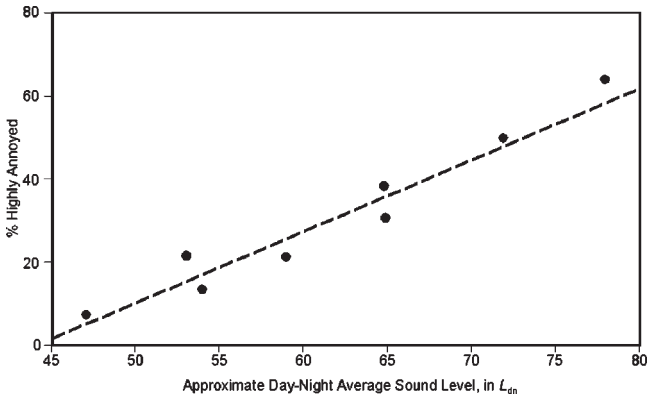

FIG. 4. Early estimate of relationship between cumulative noise exposure and prevalence of aircraft noise-induced annoyance contained in supporting documentation for EPA Levels Document.

pendix D of the Levels Document (''Noise Interference with Human Activities and Resulting Overall Annoyance/Health Effects'') make it clear that EPA's use of the term ''community reaction'' refers to complaints. Figure 2 is merely a reworking of the Rosenblith and Stevens case study complaint information, intended to reduce the variance in each reaction category. Figure 3 is an attempt to relate complaint and annoyance data to noise exposure information through the early dosage-effect relationship shown in Fig. 4. In other words, EPA's 1974 rationale for identifying sound levels requisite to protect public health and welfare was based on speech interference and complaints rather than annoyance:

''Thus, the levels identified [in the Levels Document] primarily reflect results of research on community reaction [*i.e.*, complaints] and speech masking'' (EPA, 1974, p. 21).

The first large-scale social survey that attempted to associate attitudinal factors with noise exposure estimates was conducted in the vicinity of London Heathrow Airport in 1961. The supplementary reports to EPA's Levels Document were cognizant of the results of this and other early social surveys, but not sufficiently swayed by the quantity or interpretability of social survey data to base identification of protective sound levels on this information. Figure 4 illustrates the interpretation afforded to annoyance data at the time of publication of the Levels Document. Several aspects of Fig. 4 remain of interest today: (1) rejection of average annoyance in favor of ''high'' annoyance as the measure of noise effect; (2) reliance upon a fitting function with an assumed form (linear, in this case) to describe the field data; (3) use of the then-newly defined DNL as the predictor of the prevalence of annoyance; and (4) characterization of about a third of the population as highly annoyed by aircraft noise at $L_{dn} = 65$ dB. It was not until a decade later that Schultz's more extensive work lent enough credibility to such analyses to shift the technical rationale underlying noise regulatory policy from complaints and speech interference to annoyance.[4]

III. SUBSEQUENT EXTENSIONS OF SCHULTZ'S ANALYSIS

The segment of a third-order polynomial function that Schultz used to describe his 11 original clustering surveys (% Highly Annoyed $= 0.8533L_{dn} - 0.0401L_{dn}^2 + 0.00047L_{dn}^3$) was an informal approximation, rather than a relation derived from regression analysis. The limitations of both the data set from which the arbitrary fit was derived and of the fitting function itself were readily apparent. Perhaps the most striking aspect of the data set that Schultz and his successors (*e.g.*, Fields, 1991) assembled is its great variability (*cf.* Schomer, 2002, Fig. 6). Noting the relatively small amounts of variance accounted for by relationships between noise exposure and the prevalence of annoyance in individual studies, Job (1988) inferred that nonacoustic factors that were not reflected in DNL values played a role comparable to exposure itself in determining community reaction to noise.

Schultz recognized the preliminary nature of his original synthesis curve, and did not expect it to remain the final word for long. For example, Fidell *et al.* (1988) modeled the shape of a fitting function on the basis of first principles[5] rather than purely descriptive regression analysis. Green and Fidell (1991) later applied this model to an expanded data set developed by Fidell *et al.* (1991), quantifying the influences of nonacoustic factors on annoyance reports. Harris (Finegold *et al.*, 1994) omitted selected points from the latter data set to derive an ogival fitting function in place of the quadratic form of Fidell *et al.* (1991). CHABA (Fidell, 1996) eventually identified fitting functions for community reaction to high-energy impulsive sounds, while Miedema and Vos (1998) argued for three separate quadratic functions (to fit data from rail, road, and air traffic) in place of a single generalized function for all transportation noise.

IV. PRACTICAL IMPORTANCE OF DOSAGE-EFFECT RELATIONSHIPS IN COMMUNITY NOISE ASSESSMENTS

The U.S. Federal Interagency Committee on Noise (FICON) declared in its 1992 report that annoyance was its preferred ''summary measure of the general adverse reaction of people to noise,'' and that ''the percentage of the area population characterized as 'highly annoyed' by long-term exposure to noise'' was its preferred measure of annoyance. FICON institutionalized the fitting function developed by Harris (*cf.* Fig. 5) for the U.S. Air Force as its preferred dosage-effect relationship. FICON also indicated in Section 3.3.1.2 of its 1992 report that ''the DNL methodology'' (i.e., its preferred dosage-effect relationship) was the basis for its judgments about the acceptability of noise exposure, as expressed in the agency's ''land use compatibility''[6] recommendations.

The canon of community noise policy of U.S. federal agencies is based on FICON's endorsements (1) of annoyance as the primary measure of community reaction[7] to noise exposure, (2) of a particular fitting function as a means for predicting annoyance from cumulative exposure, and (3) of a set of guidelines for the acceptability of annoyance prevalence rates, expressed as ''land use compatibility'' recommendations. Thus, decisions about the award of billions of dollars of federal subsidies to construct airport and highway infrastructure and to mitigate their noise impacts ostensibly rest on the shape of a purely descriptive fitting function,

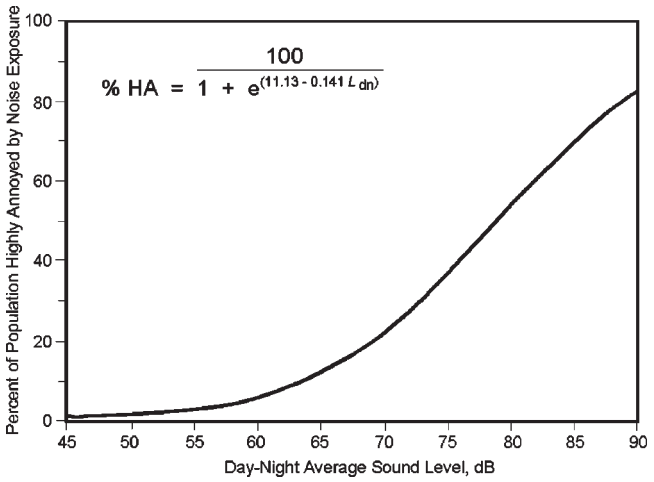

FIG. 5. Fitting function adopted by FICON (1992) as a dosage-effect relationship.

unsupported by quantitative, theory-based, or other systematic understanding of the origins and mechanisms of community reaction to transportation noise.[8]

V. PRAGMATIC LIMITATIONS OF DOSAGE-EFFECT ANALYSIS

Because the dosage-effect relationship seen in Fig. 5 lacks pronounced inflection points, it is not self-interpreting for policy purposes. The slope of the curve varies smoothly from about 1% to 3% highly annoyed per decibel of noise exposure throughout its range, such that the curve itself does not strongly constrain the choice of policy points for regulatory purposes. Historically, such policy points have been identified at 5-dB intervals, in tacit recognition of the uncertainty of measurements of both noise exposure and community reaction. Definition of any particular value of noise exposure as a ''significant'' noise impact is thus inescapably arbitrary, and must be made on nontechnical grounds. At $L_{dn}=65$ dB, the FICON curve seen in Fig. 5 predicts an annoyance prevalence rate of 12.3%, a less than self-evident definition of significance.

Several aspects of FICON's dosage-effect relationship and its application to regulatory policy regularly attract critical comment, even though controversy over its manner of creation has largely subsided. A common criticism of the relationship is that it demonstrably underestimates the prevalence of annoyance due to aircraft noise. Part of this underestimation is due to the functional form of the relationship, and to the range of exposure values over which the relationship was developed. Another source of underestimation is its lack of source-specificity.

The segment of a third-order polynomial fitting function identified by Schultz (1978) was suitable for evaluation only within a restricted range of commonly encountered transportation noise exposure values. The ogival form of the FICON relationship was favored in part for its asymptotic behavior at low and high exposure levels, and in part to control where the broad knee of the curve lies on the abscissa. It is not clear, however, that regulatory policy analyses are as well served by the ogival form of the fitting function as was initially hoped.

The composition and character of community noise differ greatly throughout the enormous (>40 dB) range of exposure levels from which FICON's relationship is derived. In quiet, low population density residential settings, community noise exposure may be governed by relatively small numbers of low level, individually identifiable, discrete noise events that are produced by small numbers of sources. In high-density urban settings, noise exposure is generally created by larger numbers of temporally overlapping, higher level noise events (Fidell *et al.*, 1981). Developing a dosage-effect relationship over this entire range, rather than from data in the vicinity of potential policy points (that is, round-numbered DNL values at which regulatory agencies consider certain actions justifiable), implies a belief that the same processes that give rise to annoyance in quiet rural and suburban settings also give rise to annoyance in noisy urban settings such as those adjacent to airport runways.

The ''equal energy hypothesis''—the notion that the effects of number, duration, and level of noise events are completely equivalent and interchangeable determinants of the annoyance of noise exposure—provides the rationale for including information about community reactions to extremely low and extremely high levels of noise exposure from all sources in a single dosage-effect analysis. Although evidence exists to support the plausibility of the hypothesis, counter-evidence also exists about the unequal influences on annoyance of maximum levels and numbers of noise events.[9] It is for reasons of expedience rather than any conclusive demonstration of causality that DNL intentionally combines into a single index (and thus confounds) all of the primary physical characteristics of noise events that could arguably cause noise-induced annoyance.

The shape of FICON's fitting function is strongly affected by reactions of communities exposed to transportation noise at extreme levels about 20 dB higher and lower than those of practical regulatory interest. Why should a curve intended to inform decisions about tolerable levels of annoyance in common circumstances of noise exposure so strongly reflect information about reactions observed in communities with highly atypical exposure? There can be no realistic expectation that noise-induced annoyance in high population density, motorized society can be limited to that of quiet rural areas, nor that residential uses can freely be made of lands exposed every few minutes, night and day, to high levels of aircraft noise. Forcing the ogival form of FICON's fitting function through the high noise exposure data effectively depresses the broad knee of the curve at more moderate exposure values. This in turn biases the function toward underestimation of the prevalence of annoyance at more commonly occurring exposure levels.[10]

This effect is readily apparent in comparing the means of measured annoyance prevalence rates to the FICON curve in adjacent exposure ranges of practical interest. Figure 6 shows an expanded view of annoyance prevalence rates with aircraft noise exposure levels in the vicinity of $L_{dn}=65$ dB. These data are those of Green and Fidell (1991), supplemented by the findings of subsequent opinion surveys. The

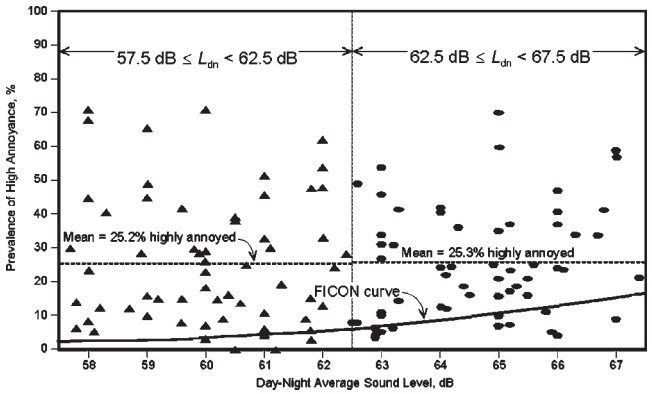

FIG. 6. Expanded view of data on prevalence of aircraft noise-induced annoyance in the vicinity of $L_{dn}=60$ and 65 dB.

triangular data points on the left-hand side of the figure represent observations of the prevalence of annoyance due to aircraft noise in the range of $57.5\ \text{dB} \leqslant L_{dn} < 62.5\ \text{dB}$, while the oval data points on the right-hand side represent observations of the prevalence of annoyance due to aircraft noise in the range of $62.5\ \text{dB} \leqslant L_{dn} < 67.5\ \text{dB}$. The two sets of data points thus represent ranges of ± 2.5 dB around the pragmatically important exposure values of $L_{dn}=60$ and 65 dB, respectively.

The dashed horizontal lines in the lowermost panel of Fig. 6 show the means of the field observations. The curved line is the FICON relationship. It is readily apparent (1) that the FICON relationship underestimates the prevalence of field measurements aircraft noise-induced annoyance, and (2) that the aircraft annoyance data themselves do not compel identification of a DNL value of 65 dB as a self-evidently justifiable or data-driven policy point.

VI. INTERPRETABILITY OF DOSAGE-EFFECT RELATIONSHIPS FOR POLICY PURPOSES

In hindsight, the purely descriptive and exclusively acoustic approach to the problem of predicting community reaction to noise that Schultz pioneered has not been as much of a panacea as once hoped, because the resulting relationships fail to take into account or explain the great variability of community reaction. A less than compelling dosage-effect relationship provides the appearance but not the substance of a systematic basis for policy interpretations which in reality reflect the charters and interests of regulatory agencies at least as much as information about actual noise effects.

A dosage-effect relationship implies that variation in whatever quantity is plotted as the independent variable on the abscissa *causes* variation in whatever quantity is plotted as the dependent variable on the ordinate. When the independent variable is merely an expedient one (such as cumulative noise exposure, an adventitious measure devised for other purposes), and when there is good reason to believe that the dependent variable is strongly influenced by other factors as well, the persuasiveness and utility of a dosage-effect relationship are open to question.

Many of the limitations of the work inspired by Schultz's 1978 relationship stem from its noncausal nature. The most obvious deficiency of the many curve-fitting exercises that followed Schultz's is that none accounts for the better part of the variance in what is now a very large body of social survey data on the prevalence of annoyance associated with environmental noise exposure. This means that no systematic explanations are available for large differences in annoyance prevalence rates in different communities with the same noise exposure. It also means that accurate predictions of the prevalence of annoyance in communities exposed to change in noise levels (for example, from increases in air traffic due to increased market demand, a favorable regulatory climate, over-building of airport infrastructure, or other causes) remain elusive. It further means that prediction of the benefits of costly measures intended to mitigate noise exposure cannot be made with confidence, and that regulatory policies intended to balance conflicting societal interests remain largely arbitrary and poorly supported by technical analysis (Fidell, 1999).

VII. CONSEQUENCES OF FICON'S ENDORSEMENT OF A PREFERRED METHODOLOGY FOR PREDICTION OF COMMUNITY REACTION TO NOISE

FICON'S endorsement of the prevalence of a consequential degree of annoyance as the primary (and for practical purposes, sole) measure of community reaction to noise, and of a particular dosage-effect relationship between noise exposure and annoyance, has undeniably simplified the process of estimating and disclosing transportation noise impacts as mandated by the U.S. National Environmental Policy Act of 1969. This approach errs on the side of oversimplification of the process of predicting community reaction to transportation noise, since (1) noise exposure is neither a necessary nor a sufficient antecedent condition for annoyance, and (2) noise exposure *per se* is not a particularly effective predictor of the prevalence of annoyance. A recent summary by Schomer (2002) has catalogued the various "adjustments," "corrections," and "normalizations" to DNL that have been suggested to improve the accuracy of prediction of community reaction from noise exposure measurements. Suggesting *ad hoc* adjustments to exposure measurements construes the problem as one of measurement rather than one of theory, however, and thereby treats the symptoms rather than the disease. Bandaids applied to exposure measurements are akin to the epicycles that Ptolemy's views about the orbits of planets required to account for their otherwise inexplicable retrograde motions. Such patchwork solutions appear helpful in the short run, but only postpone development of more systematic and fundamental explanations.

In the United States, FICON's doctrine has codified the *status quo* in understanding of community reaction to noise as of a quarter century ago, led to repeated misprediction of community reaction to noise exposure, and generally reinforced policies that do not accomplish their own goals. A greater proportion of the population than predicted by FICON is demonstrably highly annoyed by aircraft noise at the *de facto* threshold of federal concern ($L_{dn}=65$ dB) (Miedema and Vos, 1998); many airport noise controversies remain inexplicable from the perspective of official recom-

mendations of compatible land use; and vigorous opposition to construction of airport infrastructure is more the rule than the exception.

Overreliance on officially predicted annoyance prevalence rates to assess community reaction to aircraft noise has also created an institutional disconnect between local and federal perspectives. For all practical federal purposes, ''community reaction to noise'' means little more than an annoyance prevalence rate estimated by an assumption-laden fitting function. In the daily experience of airport proprietors and local governments, however, ''community reaction'' generally refers to numbers of recent noise complaints. Imprecise predictions of prevalence rates of covert attitudes have in effect taken precedence over the overt behaviors that were the original focus of Rosenblith *et al.*, and which remain the crux of many aircraft noise controversies.[11]

VIII. ALTERNATIVES FOR IMPROVING ASSESSMENT OF COMMUNITY REACTION TO AIRCRAFT NOISE

According to FICON (1992), Green and Fidell (1991) ''demonstrated how the variability in the data points of the Schultz curve could be significantly reduced by assuming that citizens of the same community tend to share common criteria for deciding when an intruding noise is 'highly annoying'.'' Systematic consideration of the aggregate effect of nonacoustic factors on self-reported annoyance can indeed improve the accuracy and precision of predictions of annoyance prevalence rates. FICON also noted in its 1992 report that ''This work is continuing and may provide a basis for an improved understanding of community response to noise.'' In the decade since publication of FICON's report, however, its successor agency, FICAN, has taken no major action to further improve the accuracy of prediction of the prevalence of noise-induced annoyance in communities.

Furthermore, land use compatibility recommendations (notionally linked to dosage-effect analysis, which in turn relies on cumulative noise exposure as a sole predictor variable) have effectively displaced all other interpretations of transportation noise effects for federal purposes.[12] In particular, FICON (1992) rejects complaint behavior as a basis for interpreting noise effects on the grounds that ''Annoyance can exist without complaints and, conversely, complaints may exist without high levels of annoyance.'' As Schultz and his successors have amply demonstrated, however, it is equally true that high levels of annoyance can exist at low levels of noise exposure, and low levels of annoyance can exist at high levels of noise exposure. The lack of a strong or simple relationship between noise exposure and its effects is neither a consistent nor a persuasive rationale for ignoring noise complaints in policy analyses.

In fact, annoyance prevalence rates and complaint rates may be usefully viewed as two sides of the same coin. Annoyance prevalence rates are estimated from systematically solicited opinions about noise. Complaints are spontaneous (unsolicited) reports of adverse opinions about noise. Complaints and annoyance may differ in gestation period, but understanding of the time course of arousal and decay of annoyance is so imprecise that nothing definitive is known about the terms of exposure that give rise to either annoyance or complaints.

Questionnaire items soliciting self-evaluations of degrees of annoyance necessarily focus on the long term, because it is impractical to administer a social survey in real time to a representative sample of a community about reactions to individual aircraft noise events. Spontaneous self-reports about reactions to aircraft noise often concern egregious individual noise events or periods of exposure. Airports seldom receive complaints on New Year's eve about annual average exposure levels over the course of the preceding calendar year.

In this context, it makes no more sense to ignore complaint behavior because it may or may not be closely related to annoyance than to ignore attitudes of annoyance because they may or may not be closely related to complaints. Both solicited and unsolicited forms of self-report confound ''true'' sensitivity to noise with reporting bias (Green and Fidell, 1991). Biases associated with complaints may strike some as more obvious than biases associated with self-reported annoyance, but neither spontaneous nor solicited forms of expression are free from nonacoustic influences. Neither complaints nor annoyance are any less worthy of consideration because of this confounding, and neither the acoustic nor the nonacoustic determinants of annoyance and complaints can be summarily dismissed by airport proprietors or regulatory agencies.[13]

In reality, noise complaints play a strong, albeit unspoken, role in airport design and operation. Dallas–Ft. Worth International Airport was sited on about 18 000 acres of land in the early 1970s, even though its projected $L_{dn} = 65$ dB cumulative noise exposure contour encompassed far less area. Likewise, Denver International Airport was sited on about 29 000 acres, even though its projected $L_{dn} = 65$ dB cumulative noise exposure contour was considerably smaller. Both of these greenfield airports have nonetheless attracted tens of thousands of aircraft noise complaints over the years, some from communities many miles from their $L_{dn} = 65$ dB cumulative noise exposure contours. Regional airspace use and flight track modification controversies such as the Extended East Coast Plan are typically complaint-driven, and frequently require resolution of noise problems at exposure levels that are inconsequential from the perspective of federal land use compatibility guidelines. Although such adverse community reaction may seem ''wrong'' from the perspective of airport proprietors and regulators, it nonetheless has substantive consequences and obvious implications for the adequacy of cumulative exposure as a sole predictor of community reaction.

Complaints were abandoned as a measure of community reaction to noise at the federal level in the 1970s largely because of the promise that Schultz's relationship seemed to offer. At the time, noise complaints were difficult to process and systematically compare, largely inaccessible to researchers, and generally awkward to interpret. These limitations have lessened over the last decade as computer-based aircraft noise and operations monitoring systems have become commonplace at major airports, and as geo-information system

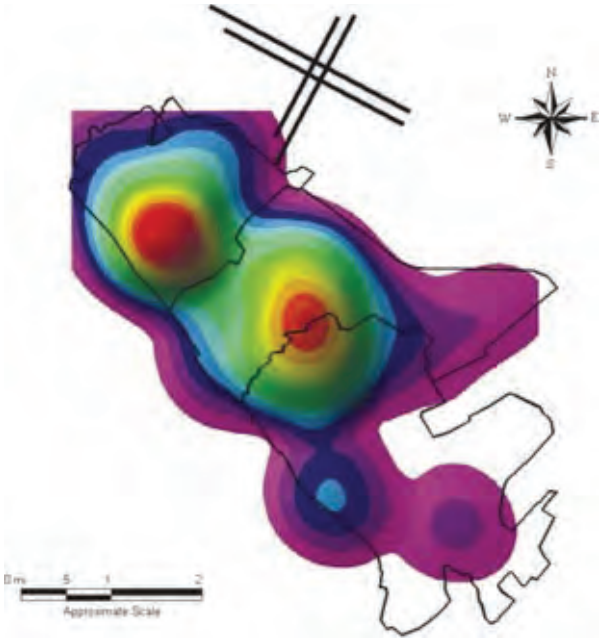

FIG. 7. Rendering of complaint density pseudo-terrain as redundantly color-coded false elevation behind main departure runways at San Francisco International Airport.

software has come of age. Larger airports now routinely maintain well-organized, long-term files of geo-coded noise complaints. These are proving more tractable to interpretation than previously believed (Fidell and Howe, 1998).

Perhaps the most common remaining complaints about complaints as a measure of community reaction to noise are (1) that they are not obviously related to cumulative noise exposure, and (2) that most aircraft noise complaints are received from geographic areas outside the $L_{dn}=65$ dB noise exposure contour at most airports (GAO, 2000). These circular concerns are misplaced, given that cumulative noise exposure is itself a far from perfect predictor of annoyance. Complaint rates are sometimes also denigrated as emphasizing the views of small numbers of frequent complainants, even though analysis of very large, computer-maintained aircraft noise complaint files shows that mean and modal numbers of complaints per complainant are quite small (Fidell and Howe, 1998).

One example of the ready interpretability of complaint information is evident in the geographic pattern of noise complaints associated with start of takeoff roll noise at San Francisco International Airport. An airport-sponsored analysis (Pearsons *et al.*, 2000) of noise complaints lodged over a period of 6 years was conducted by geo-coding street addresses of complainants to contour complaint densities. Figure 7 shows these complaint densities coded as false elevation. The peaks of the pseudo-terrain correspond to two concentrations of complaints, located behind and roughly 45° to the sides of the extended centerlines of the airport's primary departure runways. These locations correspond to the lobes of the directivity patterns of jet engine exhaust noise of aircraft departing on these runways. The complaint concentrations are well beyond the airport's $L_{dn}=65$ dB cumulative noise exposure contour.

The unusually great low-frequency content of start of takeoff roll (''backblast'') noise is an arguably special case in which the degree of adverse reaction to noise is underestimated by the A-weighting of cumulative exposure (cf. Fidell *et al.*, 2002). Limitations of the A-weighting network do not account for similar findings about the geographic distribution of complaints with respect to DNL contours at airports elsewhere, however. An airport-sponsored complaint analysis conducted at Naples Municipal Airport in Florida documents a mismatch between overt community reaction to aircraft noise and land use compatibility recommendations premised on annoyance prevalence rates. Figure 8 shows two ''mountains'' in complaint density (rendered as false elevation) along the extended centerline of the primary departure runway at the airport. The contour draped over the complaint density pseudo-terrain that encompasses the bulk of the high ground is the 95 dB maximum A-level contour. (The airport's $L_{dn}=65$ dB contour closes much nearer to the end of the runway.)

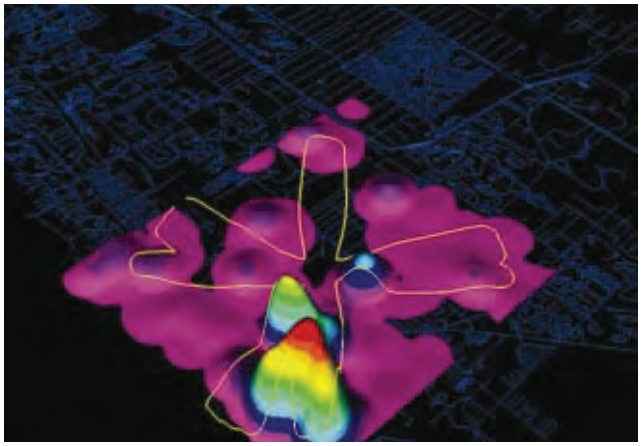

FIG. 8. Rendering of complaint density pseudo-terrain as redundantly color-coded false elevation near Naples Municipal Airport, with 95 dB maximum A-weighted aircraft noise contour superimposed in yellow.

Noise complaints at Naples Municipal Airport were dominated by a very small number of unscheduled operations by an unusually noisy aircraft. Noise emissions from the fleet operating at Hanscom Field, however, are less influenced by such small numbers of operations of especially

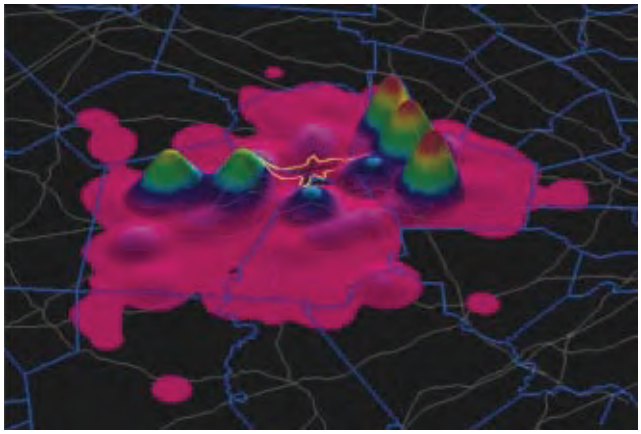

FIG. 9. Rendering of complaint density pseudo-terrain as redundantly color-coded false elevation near Hanscom Field, with $L_{dn}=65$ dB noise exposure contour superimposed in yellow.

noisy aircraft. Nonetheless, Fig. 9 shows that peaks of complaint density remain well outside of the $L_{dn}=65$ dB contour that supposedly distinguishes airport-compatible from airport-incompatible residential land uses.

The geographic distributions of noise complaints with respect to runway ends, flight tracks, and directivity of aircraft noise sources are more consistent with proximity to flight tracks and directivity of noise sources than with current regulatory policy for assessment of transportation noise impacts. The increased interpretability of noise complaints made possible by computer-based record keeping and geoinformation system software suggests a more prominent role in the future for complaint rate information in the design of aircraft noise mitigation projects and impact assessments. Ironically, such a role would be reiminiscent of that which complaints played in community reaction assessments prior to Schultz's 1978 synthesis work.

IX. CONCLUSIONS

A quarter of a century of follow-up work to Schultz's 1978 synthesis is sometimes cited as establishing credibility for assessment of environmental noise impacts exclusively on the basis of DNL values. It is apparent in retrospect, however, that a point of diminishing returns has been passed in dosage-effect analysis, and that the impetus to research and policy analysis that Schultz's work provided has run its course without yielding further major improvements in systematic understanding of causes and mechanisms of community reaction to transportation noise. An administratively convenient partial solution to a vexing societal problem may suffice for some nontechnical policy purposes. Expedient but incomplete solutions do not constitute genuine understanding of community reaction to noise, however, and can not serve in lieu of theory development and research to improve understanding in this field.

A thorough review of the technical rationale for FICON's decade-old endorsement of dosage-effect analysis would be a useful initial step toward improved understanding of community reaction to transportation noise. The following issues are among those that warrant scrutiny in light of what has been learned since Schultz's 1978 work:

(i) the effects on policy analyses of poor correlation between annoyance prevalence rates predicted by the fitting function preferred by FICON and rates actually observed in communities;
(ii) analysis of the logic and effects on noise impact interpretations of the range of exposure values over which the fitting function is developed, and of its form;
(iii) computation of error bounds and confidence intervals for predicted annoyance prevalence rates, and frank exploration of their effects on land use compatibility recommendations;
(iv) adoption of a data-driven rationale for selection of policy points rather than an imprecise predictive function;
(v) systematic, quantitative, and theory-based consideration of nonacoustic factors as codeterminants of the annoyance of transportation noise; and
(vi) formal recognition of geographic distributions of noise complaints as an alternate indication of actual community reaction to transportation noise.

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[1]The first urban noise survey (Fletcher *et al.*, 1930) had been conducted in New York City three decades earlier, not long after the development of portable electronic sound measurement instruments made such work possible. Societal interest in environmental noise effects remained minimal through the intervening decades of economic depression and world war, however.

[2]The reasoning that led to EPA's embrace of DNL is described in great detail by von Gierke (1973) in supplementary reports prepared in support of the Levels Document.

[3]The U.S. Air Force later developed a set of numeric equivalents for the original CNR letter categories A though M (Stevens and Pietrasanta, 1957), in which the equivalent level of the 300–600 Hz octave band of aircraft noise was substituted for the original ''level rank'' curves. (This spectral region is a reasonable predictor of the ability of aircraft noise to interfere with speech.) The final development of this ''Composite Noise Rating'' by Galloway and Pietrasanta (1963) substituted perceived noise levels for equivalent levels in the 300–600 Hz octave band. A CNR value of 100 is equivalent to $L_{dn}=65$ dB. By the early 1970s, the Composite Noise Rating scale had evolved into the ''Noise Exposure Forecast'' (NEF) scale in which the earliest aircraft noise exposure contours were expressed.

[4]The initially controversial nature of characterizing community reaction to noise in terms of annoyance is apparent from written comments by the Boeing Commercial Airplane Group (von Gierke, 1973, p. III-C-18): ''The selection of 60 dBA as a goal appears to be founded on arbitrary conclusions about the relationship between cumulative noise exposure and the highly subjective concept of 'public annoyance'.'' The ''subjective'' nature of annoyance still grates on some who regret that people do not respond to noise exactly as do sound level meters. If Schultz's work has accomplished nothing else, it has demonstrated the futility of attempts to treat community reaction to noise as an exclusively physical process.

[5]Taking a normative rather than a descriptive approach, Fidell *et al.* (1988) hypothesized that the shape of a dosage-effect relationship should be governed by the rate of increase of annoyance with effective (duration-adjusted) loudness. They also attributed deviations from the hypothesized rate of growth of annoyance to the effects of nonacoustic factors. These nonacoustic factors translate (''bias'') the prediction function along the abscissa, but do not alter its form or shape.

[6]It is important to recall that the asset that ''land use compatibility'' guidelines protect is public investment in airport facilities. Surrounding land uses are defined as compatible with an airport when they do not jeopardize or constrain the airport's continued operation and expansion.

[7]Since the goal of assessing community reaction to noise exposure changed from predicting overt group action to annoyance prevalence rates, the term has become something of a misnomer. ''Community reaction'' today means little more than a prevalence rate of a consequential degree of annoyance among individuals.

[8]Decisions about the conduct of large civil works projects are of course influenced to a greater degree by political, economic, and pragmatic considerations than by their noise impacts. Nonetheless, challenges to such projects based on state and federal environmental disclosure statutes often turn on issues of noise policy and interpretation. Thus, the lack of explicit or systematic linkage between FICON's fitting function and its policy interpretations of ''land use compatibility'' guidelines underscores the arbitrariness of such recommendations.

[9]Exposure, the logarithmic sum of numbers and levels of individual noise events (commonly normalized to 1-s durations), is obviously highly correlated with both numbers and levels of noise events. Given this high correlation, as well as the influences of inevitable nuisance variables, a critical

experiment to determine whether numbers of noise events, levels of noise events, or their product are more closely related to the prevalence of annoyance would require unreasonably large sample sizes and precision of measurement.

[10]The parabolic fit of Miedema and Vos (1998) more closely reflects the mean annoyance prevalence rate for aircraft noise in the vicinity of $L_{dn} = 65$ dB, but, like the FICON curve, fails to account for the better part of the variance in the data set.

[11]A large part of the rationale for reducing the 1981 budget of EPA's Office of Noise Abatement and Control to zero was that, like politics, noise controversies are inherently local (Shapiro, 1991). This rationale is inconsistent, however, with the preemptive disconnect between federal and local perspectives on transportation noise impacts.

[12]FICON acknowledges in principle the limited utility of noise metrics such as integrated time in excess of a threshold level and maximum sound level for supplementary analytic purposes, but expresses its formal interpretations of ''land use compatibility'' only in terms of cumulative exposure.

[13]Some argue that complaints ought not inform regulatory decisions because small numbers of them could have disproportionate influence on such decisions. Given that a subjective judgment about the ''significance'' of noise exposure is *not* a scientific nor a technically justifiable decision in the first place, there is no technical basis for determining whether the virtues of representative sampling (in the case of quantifying the long-term attitude of annoyance) outweigh the value to public officials of spontaneous reports by their constituents of adverse reactions to noise (in the case of the immediate behavior of complaining).

Beranek, L., Kryter, K., and Miller, L. (**1959**). ''Reaction of people to exterior aircraft noise,'' Noise Control, Acoust. Soc. Am., September, pp. 23–32.

Environmental Protection Agency (**1974**). ''Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety,'' U.S. Environmental Protection Agency, EPA/ONAC 550/9-74-004, Washington, DC.

Federal Interagency Committee on Noise (FICON) (**1992**). ''Federal Agency Review of Selected Airport Noise Analysis Issues,'' Report for the Department of Defense, Washington, DC.

Fidell, S. (ed.) (**1996**). ''Assessment of Community Response to High Energy Impulsive Sounds,'' National Research Council, National Academy Press, Washington, DC.

Fidell, S. (**1999**). ''Assessment of the effectiveness of aircraft noise regulation,'' Noise & Health **3**, 17–25, ISSN 1463–1741.

Fidell, S., and Howe, R. (**1998**). ''Use of Airport Noise Complaint Files to Improve Understanding of Community Response to Aircraft Noise,'' NASA Contractor Report 207650, NASA Langley Research Center, Hampton, VA.

Fidell, S., Barber, D., and Schultz, T. J. (**1991**). ''Updating a dosage-effect relationship for the prevalence of annoyance due to general transportation noise,'' J. Acoust. Soc. Am. **89**, 221–233.

Fidell, S., Horonjeff, R., and Green, D. M. (**1981**). ''Statistical analyses of urban noise,'' Noise Control Eng. J. **16**, 75–80.

Fidell, S., Schultz, T. J., and Green, D. (**1988**). ''A theoretical interpretation of the prevalence rate of noise-induced annoyance in residential populations,'' J. Acoust. Soc. Am. **84**, 2109–2113.

Fidell, S., Pearsons, K., Silvati, L., and Sneddon, M. (**2002**). ''Relationship between low-frequency aircraft noise and annoyance due to rattle and vibration,'' J. Acoust. Soc. Am. **111**, 1743–1750.

Fields, J. M. (**1991**). ''An updated catalog of 318 social surveys of residents' reactions to environmental noise (1943–1989),'' NASA Contractor Report 187553, Contract NAS1-19061.

Finegold, L., Harris, C. S., and von Gierke, H. E. (**1994**). ''Community annoyance and sleep disturbance: Updated criteria for assessing the impacts of general transportation noise on people,'' Noise Control Eng. J. **42**, 25–30.

Fletcher, H., Beyer, A. H., and Duel, A. B. (**1930**). ''Noise Measurement,'' in *City Noise, Report of the Noise Abatement Commission*, Department of Health, City of New York.

Galloway, W., and Pietrasanta, A. (**1963**). ''Land use planning with respect to aircraft noise,'' AFM 86-5, TM 5-365, NAVDOCS (also published by FAA as TR-821).

Government Accounting Office (GAO) (**2000**). ''Aviation and the environment: results from a survey of the nation's 50 busiest commercial service airports,'' GAO/RCED-00-222, Washington, DC, pp. 35–36.

Green, D. M., and Fidell, S. (**1991**). ''Variability in the criterion for reporting annoyance in community noise surveys,'' J. Acoust. Soc. Am. **89**, 234–243.

Job, R. F. S. (**1988**). ''Community response to noise: A review of factors influencing the relationship between noise exposure and reaction,'' J. Acoust. Soc. Am. **83**, 991–1001.

Kryter, K. D. (**1982**). ''Community annoyance from aircraft and ground vehicle noise,'' J. Acoust. Soc. Am. **72**, 1222–1242. See also ''Rebuttal by K. D. Kryter to comments by T. J. Schultz,'' J. Acoust. Soc. Am. **72**, 1253–1257.

Miedema, H., and Vos, H. (**1998**). ''Exposure-response relationships for transportation noise,'' J. Acoust. Soc. Am. **104**, 3432–3445.

Pearsons, K., Fidell, S., Silvati, L., Sneddon, M., and Howe, R. (**2000**). ''Study of the Levels, Annoyance and Potential Mitigation of Backblast Noise at San Francisco International Airport,'' BBN Report 8257.

Rosenblith, W., Stevens, K. N., and the staff of Bolt Beranek and Newman (**1953**). *Handbook of Acoustic Noise Control, Volume II, Noise and Man*, WADC Technical Report 52-204, Wright Air Development Center, OH.

Schomer, P. (**2002**). ''On normalizing DNL to provide better correlation with response,'' Sound Vib. 14–23.

Schultz, T. J. (**1978**). ''Synthesis of social surveys on noise annoyance,'' J. Acoust. Soc. Am. **64**, 377–405.

Shapiro, S. (**1991**). ''The dormant Noise Control Act and options to abate noise pollution,'' Administrative Conference of the United States, Washington, DC.

Stevens, K., and Pietrasanta, A. (**1957**). ''Procedures for estimating noise exposure and resulting community reactions from air base operations,'' WADC TN-57-10, Wright-Patterson Air Force Base, OH.

Stevens, K. N., Rosenblith, W., and Bolt, R. (**1955**). ''A community's reaction to noise: Can it be forecast?'' Noise Control **1**, 63–71.

von Gierke, H. (**1973**). ''Report on Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure,'' prepared for Task Group 3 of the Environmental Protection Agency's Aircraft/Airport Noise Report Study.

Exhibit 2

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October 30, 2012

Via email to hglasgow@lawa.org and U.S. Mail

Mr. Herb Glasgow
Chief of Airport Planning
City of Los Angeles, Los Angeles World Airports
1 World Way, Rm. 218B
Los Angles, CA 90045

Re: LAX West Aircraft Maintenance Area -- Notice of Preparation

Dear Mr. Glasgow:

On behalf of the City of El Segundo, thank you for the opportunity to review the Notice of Preparation ("NOP") for the LAX West Aircraft Maintenance Area Project ("WAMA" or "Project"). We also want to extend our thanks to LAWA staff for holding an initial meeting with El Segundo in connection with the WAMA NOP. With this Project, LAWA is proposing to relocate/consolidate aircraft maintenance activities/facilities in a new location that would bring those activities closer to some El Segundo residents. This is troubling to El Segundo due to potential noise and other impacts, so the City expects to be actively involved in the California Environmental Quality Act ("CEQA") process. We look forward to continued cooperation with LAWA as that process proceeds.

Noise Consultant Collaboration. El Segundo requested and LAWA has agreed to have its CEQA noise consultant (Ricondo and Associates) meet with El Segundo representatives during the CEQA process to discuss modeling inputs and results. To get that cooperative process started, El Segundo has asked LAWA to set up a "kick-off" meeting as soon as possible between El Segundo's noise consultant (Sanford Fidell) and Ricondo. El Segundo has directed its consultant to work cooperatively with Ricondo to ensure the CEQA process for the Project evaluates potential noise impacts in El Segundo clearly/fully and identifies any feasible Project improvements and alternatives (e.g., repositioning and/or placing a roof on the GRE) that would result in noise relief for El Segundo. El Segundo envisions this cooperative arrangement between LAWA and El Segundo technical consultants as similar to that in the ongoing air quality and source apportionment study.

Master Plan Consistency. The adopted LAX Master Plan calls for construction of new aircraft maintenance facilities at the neighboring Continental hangar site, not the WAMA site identified now by LAWA.[1] The WAMA Initial Study released by LAWA states as follows in section 2.5: "The proposed Project is a refinement of certain projects contemplated in the LAX Master Plan. Specifically, the proposed Project would transpose an area identified for aircraft apron and maintenance on the east side of Taxiway AA with an area identified for employee parking (West Employee Parking) on the west side of Taxiway AA. Both facilities would remain in the southwest portion of the airport, south of World Way West as proposed under the LAX Master Plan, with access routes to and from each facility remaining essentially unchanged." This language implies that if the WAMA proceeds as planned, LAWA would use the Continental hangar site for employee vehicle parking and would not install any additional aircraft maintenance facilities there. El Segundo seeks assurances regarding the enforceability of such an arrangement.

Specifically, please provide additional details regarding what process would LAWA go through to amend the Master Plan and/or FAA-approved Airport Layout Plan for LAX to reflect the above-described changes. El Segundo is interested in ensuring that if the proposed WAMA is constructed, the vacant land at the Continental hangar site is never developed with aircraft maintenance facilities. To address this concern, LAWA would have to put in place enforceable constraints/commitments to ensure that if the Continental hangar area is ever subject to further development, it would be with employee parking only.

Additionally, the NOP indicates that LAWA is not proceeding with the project on the Continental hangar site at this point because that site is contaminated. The NOP does not make clear, however, when LAWA expects that contamination to be cleaned up enough for the site to be usable. Please provide that information.

Alternative locations. El Segundo respectfully requests that LAWA evaluate one or more alternatives in the Draft Environmental Impact Report ("DEIR") that sites the new aircraft maintenance facilities somewhere other than near El Segundo's residential community (i.e., away from the southwestern area of LAX). Consideration should be given to locations that are

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[1] El Segundo has consistently objected to LAWA's departures from the adopted Master Plan. For example, as we noted in our comments on the CEQA documents for the Bradley West Project, LAWA cannot legally depart from the approved Master Plan in a substantial way without formally amending that plan and conducting the necessary CEQA analysis. Put another way, LAWA cannot continue to tier off the LAX Master Plan EIR if it is no longer proceeding in a manner consistent with the Master Plan.

further north and east, away from residential uses (e.g., the Western Remote Gate Area discussed below).

Use of Western Remote Gates Area. In discussions with El Segundo, LAWA staff has indicated that LAWA considered locating this proposed WAMA facility at the current location of the Western Remote Gates, but rejected that possibility due to space and timing constraints. While El Segundo understands that some of the Western Remote Gates area must remain intact until after the proposed Midfield Satellite Concourse ("MSC") is complete, a portion of that area would be available for construction of aircraft maintenance facilities (e.g., a hangar, some Remain Overnight ("RON") spots, some Remain All-Day ("RAD") parking, and/or the Ground Run-up Enclosure ("GRE")). To address that possibility, LAWA should provide a drawing showing some of the proposed WAMA facilities superimposed on the Western Remote Gates area. LAWA should also make clear its phasing plan for the timing/relationship of the WAMA, MSC and decommissioning of the Western Remote Gates.

Replacement of Existing Facilities. The NOP does not make clear exactly which maintenance facilities the WAMA will replace. El Segundo would like to know the location, orientation, tenant(s) and size of each such facility (including maintenance hangars, blast fences used for run-ups, etc.). El Segundo has asked LAWA to produce a drawing/map showing those things. Clear documentation is critical here to ensure that the maintenance facilities slated for replacement are actually decommissioned and do not continue to be operated following WAMA completion. Additionally, the DEIR's noise analysis should include a comparative analysis of the noise impacts associated with the proposed Project relative to existing conditions.

Operational Noise. The City of El Segundo has concerns regarding potentially significant operational noise impacts caused by aircraft operations at the GRE and in the WAMA generally (including in and around the aircraft maintenance hangars, on the aprons and during taxiway movements). El Segundo's noise standards (attached) should be utilized in the analysis and the Project should not create noise impacts to residential uses in the neighborhoods along northern El Segundo.

GRE Design. El Segundo looks forward to working with LAWA on the proposed design specifications for the GRE (and receiving any additional design information already developed by/for LAWA). We understand that historically, the principal purveyor of GREs in the United States has been Blast Deflectors, Inc. ("BDI"). Although LAWA may intend/propose to use a standard product from BDI (or some other company), El Segundo encourages LAWA to engage in a competitive (rather than sole source) procurement process. Such a process should seek to maximize the degree to which the final GRE structure attenuates/absorbs sound through customization of components to meet specifications developed in consultation with El Segundo's noise consultant.

GRE Evaluation. The noise from ground run-ups associated with maintenance activities at the WAMA is likely to cause significant single event noise impacts for El Segundo residences. This is due in part to the static nature and long duration of run-ups, particularly when compared with normal aircraft departures, which are non-static and shorter in duration. As such, it is critical that LAWA conduct a comprehensive single event noise analysis as part of the DEIR. Additionally, LAWA should consider the possibility of a roof on the proposed ground run-up enclosure (GRE) and be sure that the walls are thick enough to attenuate low-frequency noise.

Rules for GRE Use. The NOP does not make clear what rules would apply to use of the GRE. For example, would all run-ups in the WAMA need to take place in the GRE or could some occur in the maintenance hangers or elsewhere on the site or airport? Would aircraft undergoing maintenance outside the WAMA area be brought to the WAMA to use the GRE or would they continue to engage in run-ups at other locations around LAX using blast fences or other facilities. During what hours could run-ups take place at the GRE/WAMA? How would GRE use restrictions be enforced by LAWA? What would the penalties be for violations? Would the proposed maintenance facility include noise monitors to detect run-ups? Would LAWA modify the noise abatement procedures contained in its published rules for LAX to address GRE use?

Evaluating GRE Noise Reduction. We understand that A-weighted noise reductions for GREs at other airports can be on the order of up to 20 dB (or less). A-weighted noise reductions are most greatly influenced by acoustic energy in the two octaves above 1 kHz. A good part of the noise exposure problem in El Segundo, however, is caused by lower frequency energy. Low frequency energy can cause rattling noises in homes. *See* attached articles by Fidell et al. (1998, 2002), which have shown that many people in El Segundo and elsewhere are highly annoyed by such rattling sounds.

Large jet engines create appreciable acoustic energy in the six one-third octave bands centered at 25, 31.5, 40, 50, 63, and 80 Hz. The A-weighting network, however, discriminates against acoustic energy at 50 Hz by more than 44 dB. Thus, a GRE that reduces A-weighted sound levels of engine run-ups by 20 dB may reduce low frequency sound levels by far less. The DEIR must take this into account in evaluating the single event and other noise impacts associated with the WAMA/GRE.

Evaluating Noise and Terrain. The DEIR must also take into account the terrain surrounding the proposed WAMA and the relative elevation of the proposed WAMA as compared to nearby residences in El Segundo.[2] Portions of residential areas in El Segundo are elevated above airport terrain. The standard GRE design may therefore not be able to provide much attenuation of run-up noise for such residences, underscoring the need for a custom GRE. It is critically important that the specifications, design criteria, and acceptance testing for the GRE include measurements of attenuation not only at ground level, but also at elevations of as much as a few hundred feet. Additionally, noise testing must take place at some points actually located in the residential areas of El Segundo. We look forward to working with LAWA and its technical consultants on these issues.

Wind Direction. Since many residents of El Segundo live in areas that can be downwind of the proposed GRE location, it is also important that the DEIR analysis and GE design specifications take wind direction and speed into consideration. A GRE that provides useful amounts of noise reduction in still air may provide far less noise reduction under downwind propagation conditions.

Evaluating CNEL Impacts. In addition to conducting single-event noise analysis for the Project, the DEIR must estimate the expected impacts of WAMA (including GRE) operation on the community noise exposure level (i.e., the noise contours around LAX). Engine run-ups are often conducted in conjunction with other nighttime aircraft maintenance. As such, many may be subject to the 10 dB nighttime penalties of the CNEL and DNL noise metrics. LAWA's DEIR should quantify any changes in CNEL/DNL associated with the proposed Project at several points in El Segundo via noise modeling. This analysis should also look at how noise exposure reductions might be achieved (e.g., through use of an alternative site and/or design).

Second GRE. LAWA is obligated to construct two GREs. Where and when is LAWA proposing to install the second GRE?

Phasing Plan. The NOP indicates that it will take 8-10 years to implement the WAMA, but does not make clear why it will take so long. In discussions with LAWA staff, El Segundo learned that while the complete WAMA Project will take 8-10 years to implement, initially, only some of the proposed facilities will be built (e.g., one of the proposed hangars). The DEIR

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[2] The NOP does not make clear how much fill LAWA proposing at the project site. At our meeting, LAWA staff indicated that LAWA would be leveling out existing dirt piles at the project site as part of WAMA. In order to understand how noise will propogate from the site, El Segundo would like to know the finished grade elevation LAWA expects to achieve as part of the WAMA Project.

should provide a phasing plan showing how and when LAWA anticipates building out the WAMA project over the 8-10 year period. LAWA must also make clear whether and to what extent, during the build-out period, it will continue to use the proposed WAMA site for construction staging for other projects at LAX. Finally, LAWA must keep its proposed phasing plan in mind as it evaluates the feasibility of possible alternative sites (e.g., the Western Remote Gates Area).

Qantas Hangar Configuration. In discussions with El Segundo, LAWA staff indicated that Qantas (one of the future WAMA tenants) is proposing a hangar configuration slightly different from that shown in the NOP. The DEIR should obviously evaluate the facilities actually being proposed.

Cumulative Projects List. The most recent version of the cumulative projects list (October 2012) generated by the City of El Segundo is attached for your reference. Please incorporate this data into your cumulative projects analysis.

Truck Routes. El Segundo's General Plan Circulation Element establishes truck haul routes through the City (see attached Circulation Element Exhibit C-13). The City of El Segundo requests that truck trips during construction avoid the City of El Segundo, however, if any travel through the City occurs, that it must be in compliance with the City's adopted truck routes.

Thank you for the opportunity to comment on the LAX West Aircraft Maintenance Area Project. We look forward to commencing the cooperative process between our noise consultant and LAWA's. Please advise when you are ready to set up the "kick off" meeting between Ricondo & Associates and Sanford Fidell. Finally, we request that this firm and the City of El Segundo Planning and Building Safety Department receive a copy of the Draft EIR.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Osa L. Wolff

cc: City Council
Greg Carpenter, City Manager
Sam Lee, PBS Director
Kimberly Christensen, AICP, Planning Manager

Attachments:

1. Articles by Fidell et al. (1998, 2002).
2. City of El Segundo Cumulative Projects List dated October 2012.
3. General Plan Circulation Element Truck Haul Route Map (Exhibit C-13)
4. General Plan Circulation Element Excerpts (Goals, Policies, and Objectives)
5. El Segundo Municipal Code Chapter 7-2 "Noise and Vibration"
6. General Plan Noise Element Excerpts (Goals, Policies, and Objectives)

438456.1

Exhibit 3

AIRCRAFT NOISE ABATEMENT OPERATING PROCEDURES AND RESTRICTIONS

This section sets forth the Los Angeles World Airports' (LAWA's) informal noise abatement traffic; flight and runway use procedures and includes or references LAWA's formal noise abatement ground operations restrictions and other airport noise abatement procedures, restrictions and regulations involving aircraft operations.

All aircraft operators shall comply with Federal Aviation Administration (FAA) regulations and procedures for noise abatement and noise emission standards and with all rules, policies, procedures, resolutions and ordinances established by the City of Los Angeles, LAWA, and LAWA's Board of Airport Commissioners relative to noise abatement. Air Traffic Control (ATC) is used in this section as a common term for all pertinent FAA air traffic control, including but not limited to those at the LAX Control Tower and Southern California TRACON.

It is not intended that any of the traffic or flight procedures contained herein shall, in any manner, abrogate the authority and responsibility of the pilot in command to ensure the safe operation of the aircraft.

1. Operational Responsibilities

a. ATC shall employ the noise abatement preferential runway and taxiway use procedures specified herein, recognizing that under certain conditions it may be necessary to prescribe deviations because of aircraft emergencies, adverse weather, or field construction and maintenance work. Nothing in these procedures shall limit the discretion of either ATC or the pilot with respect to the full utilization of the airport facilities in an unusual situation.

b. Pilots of large aircraft (greater than 12,500 pounds) and pilots of all turbine powered aircraft who are given a preferential runway assignment by ATC shall use that runway unless the pilot determines that in the interest of safety another runway shall be used, except as provided in Subsection 4, Traffic and Flight Procedures (Over-Ocean Operations).

c. Unless specifically instructed otherwise by ATC, pilots of all aircraft departing toward the west shall, in accordance with **Subsection 4**, maintain runway heading until past the shoreline before commencing any turns.

d. Pilots shall not request the use of outboard runways (06L/25R and 07R/25L) for departure unless the pilot determines that in the interest of safety use of these runways is necessary.

e. Pilots of turboprop aircraft shall only request offset on departure in order to avoid wake turbulence, and shall not routinely request offset prior to departure.

f. Airline maintenance managers are to ensure their personnel observe the maintenance restrictions set forth in **Subsection 6**, Maintenance Restrictions.

g. LAX Airport Operations may monitor, if necessary, all maintenance operations, shall stop maintenance operations that are not in compliance with the maintenance restrictions set forth in **Subsection 6**, and shall stop waived maintenance checks when identified with community complaints.

h. The LAX Airport Operations will monitor the use of all airport auxiliary power units (APUs) as set forth in **Subsection 6**. When APU violations are detected, LAX Airport Operations will contact a representative from the airline involved to advise them of the violation.

i. The LAX Airport Operations shall stop aircraft operations that are not in compliance with the Imperial Terminal Procedures set forth in **Subsection 7**.

2. Reporting and Implementation Responsibilities

a. ATC shall report observed pilot deviations from the Traffic and Flight Procedures contained in **Subsection 4** and from the Helicopter Operating Procedures contained in **Subsection 5** to LAX Airport Operations Noise Complaint line at 64-NOISE (646-6473).

b. LAWA's Environmental Services Division will track aircraft operations deviating from **Subsections 3 and 4** contained herein. LAX Airport Operations will receive and record all reported and observed deviations from **Subsections 5, 6, and 7** contained herein. LAWA's Environmental Services Division will contact, as appropriate, LAWA Management, the FAA, aircraft owners, pilots, airline officials, community complainants or others concerning such deviations.

c. The Environmental Services Division will, in cooperation with the FAA, airline and pilot user groups, and other LAWA offices prepare and, as necessary, revise the Aircraft Noise Abatement Operating Procedures and Restrictions set forth herein.

3. Runway Use Procedures

a. Preferential Runway Use. During the noise sensitive hours of 2200 to 0700, ATC shall maximize use of inboard Runways 06R/24L and 07L/25R and Taxiways C and E. At all times, the inboard runways shall be preferred to the outboard runways for departures. Over-Ocean Operation Procedures shall be in effect between the hours of 0000 and 0630 as provided in **Subsection 4**.

b. Intersection Departures. Intersection departures will be used only when it improves the overall efficiency of the aircraft traffic flow. The only intersections designated for intersection departures are Taxiways "E-8" and "F" when the airport is operating under west flow conditions. There are no designated intersections for departures during east traffic.

4. Traffic and Flight Procedures

Due to the prevailing winds, aircraft at LAX normally approach and depart to the west (westerly operations). When weather conditions require, operations are reversed, with aircraft arriving and departing to the east (easterly operations). Between the hours of 0000 and 0630, however, aircraft operate in accordance with the over-ocean preferential runway use procedures, approaching over the ocean toward the east and departing over the ocean toward the west (over-ocean operations). Procedures for westerly, easterly and over-ocean operations are set forth below.

WESTERLY OPERATIONS

Westerly Operation Approach Procedures: RUNWAYS 24/25 BETWEEN 0630 AND 2400 HOURS

Traffic Pattern Entry – North and Northwest Traffic. ATC will instruct all turbojet and four-engine turboprop aircraft that will make a visual approach to execute the "45 Degree Visual Approach" as depicted on current aeronautical charts.

Pilots are requested to:

- Fly outbound via the Santa Monica 068-degree radial during downwind leg until commencing turn to base leg.

- Remain at 5000 feet or above until passing LAX 009 degree radial on downwind leg.

- Start turn to base leg at or above 3500 feet. Fly base leg over or just east of the Harbor Freeway. When assigned Runways 25, cross the extended centerline of Runways 24 at or above 2500 feet. Turn final approach at or above 2000 feet, east of the Hollywood Park Racetrack.

Traffic Pattern Entry – Other Direction Traffic. As directed by ATC, remain at or above 2000 MSL until intercepting final approach course east of the Hollywood Park Racetrack.

Flight Procedures.

- It is required that large airplanes (over 12,500 pounds) approaching to land, in accordance with FAR 91.129 (e) (2), fly at an altitude at or above the ILS glide slope between the outer marker (or the point of interception with the glide slope if compliance with applicable distance from clouds criteria require interception closer in) and the middle marker.

- When weather permits, high altitude low drag minimum thrust approaches are encouraged.

***Westerly Operation Departure Procedures*: RUNWAYS 24/25 BETWEEN 0630 AND 2400 HOURS**

Flight Procedures. ATC will vector turbojet and four-engine turboprop aircraft straight out, and only in an area bounded by bearing westward from the shoreline of 210 degrees and 270 degrees until reaching the altitudes stipulated in the paragraph below.

Except in an unusual situation, or at the specific direction of ATC, pilots will be requested to:

- Maintain runway heading until past the shoreline and reaching 4000 feet before making a right turn and 3000 feet before making a left turn. After lift-off, fly straight to shoreline prior to commencing any turns. Avoid over-flying communities to the north and south of the airport unless under the specific direction of ATC to do so. Twin engine piston and turboprop and all propeller airplanes under 12,500 pounds are exempt only from the altitude restriction.

- Pilots of civil turbojet powered airplanes should employ the takeoff and departure procedure outlined in FAA Advisory Circular 91.53A dated July 22, 1993. However, this does not imply that a reduced thrust technique cannot be used during westerly direction takeoffs.

Nighttime Departure Procedures. During the night hours commencing approximately at 2100 until 0700, all IFR jet departures will use the LAXX and Ventura departures. The Gorman and Loop departures will not be utilized during this time.

EASTERLY OPERATIONS

EASTERLY OPERATION APPROACH PROCEDURE: RUNWAYS 6/7 (WHEN WEATHER CONDITIONS REQUIRE)

Traffic Pattern Entry. As directed by ATC.

Flight Procedures.

- All aircraft shall conduct over-ocean approaches from west to east.

- The base leg for visual approaches shall be flown at least one mile west of the shoreline.

EASTERLY OPERATION DEPARTURE PROCEDURES: RUNWAYS 6/7 (WHEN WEATHER CONDITIONS REQUIRE)

Flight Procedures Pilots of civil turbojet powered airplanes should employ the takeoff and departure procedure outlined in FAA Circular 91.53A dated July 22, 1993. Use of a reduced thrust technique during easterly direction takeoffs is discouraged.

OVER-OCEAN OPERATIONS

OVER-OCEAN OPERATION APPROACH PROCEDURES

***Easterly Approach Flight Procedures*: RUNWAYS 6/7 BETWEEN 2400 AND 0630 HOURS**

- In accordance with the flight procedures delineated above for Easterly Operation Approach Procedures.

- All landings shall be made on Runways 6R and 7L. Deviations are permitted in accordance with Subsection 1 of this Section.

Westerly Approach Flight Procedures (Due to Weather Limitations) Runways 24/25 Between 2400 and 0630 hours. In the event ATC determines that existing weather does not provide for Visual Separation between easterly arriving and westerly departing aircraft (including a ceiling of 400 feet or less above ground level at the westerly end of the airport, a tail wind component that exceeds ten knots from the west, or the runway visual range (RVR) indicates less than 2400 feet), ATC may permit all aircraft to land from east to west in accordance with the procedures delineated above for Westerly Operation Approach Procedures.

OVER-OCEAN OPERATION DEPARTURE PROCEDURES

***Westerly Departure Flight Procedures*: RUNWAYS 24/25 BETWEEN 2400 AND 0630 HOURS.**

- In accordance with the flight procedures delineated above for Westerly Operations Departure Procedures.

- All departures shall be made on Runways 24L and 25R. Deviations are permitted in accordance with Subsection 1.a of this Section.

Easterly Departure Flight Procedures (Due to Weather Limitations): Runways 6/7 Between 2400 an 0630 hours. In the event ATC determines that existing weather provides for only easterly departure traffic flow, including a tail wind component that exceeds ten knots from the east, ATC shall only permit departures on Runways 6R and 7L. Deviations are permitted in accordance with Subsection 1.a of this Section.

5. Helicopter Operating Procedures

The following conditions apply only to helicopter operators with a valid Operating Agreement with LAWA, including a signed Letter of Agreement.

a. All operators conducting helicopter operations at LAX shall carry a current LAX area Helicopter Route Chart and shall comply with ATC requirements and procedures pertaining to helicopter routes and altitudes within the Los Angeles Class B airspace, and with the procedures set forth herein.

b. Helicopter operators arriving or departing the airport shall utilize the flight routes designated by the FAA for Visual Flight Rules (VFR) and Special Visual Flight Rules (SVFR) operations.

c. During SVFR operations, helicopter operators are requested to utilize the southerly industrial route when arriving or departing the airport unless specifically instructed otherwise by ATC.

d. In addition to using FAA designated flight routes, helicopters maintain an altitude of 2,000 feet, weather, traffic and safety permitting.

e. Helicopter operators shall use noise abatement approach and departure flight techniques.

f. Helicopter operators shall avoid nighttime (2200 to 0700) operations except in extreme emergency cases.

g. All helicopter training operations are prohibited, such as: touch-and-go, stop-and-go, and low approach, except for FAA certification flights.

h. Helicopter operators shall provide an identification symbol as prescribed by LAWA that is readily visible from the ground on each of the rotorcraft used in regularly scheduled LAX service.

i. Prior to issuance of a helicopter operating agreement, operators are required to develop, implement, and file with the Board of Airports Commissioners a “Fly Neighborly Program” that emphasizes noise abatement and community compatibility through actions in at least the following areas:

i. Pilot Awareness

ii. Pilot Training and Flight Operations Planning

iii. Noise Abatement Techniques

iv. Sensitivity to Community Concerns

v. Public Information/Helicopter Identification

vi. VFR/SVFR Approach and Departure Routes

vii. Hours of Operations

j. Fly Neighborly Programs shall be kept current and shall be re-filed with the Board of Airport Commissioners whenever revised

k. All helicopter-operating agreements shall be issued for a period not longer than five years and shall be reviewed on an annual basis by the Executive Director. The Executive Director shall submit a compliance report to the Board of Airport Commissioners.

6. Maintenance Restrictions (See Section 3 paragraph 6)

a. Operators unable to perform run-ups on approved leasehold run-up pads, must obtain approval and instructions from LAX Airport Operations Airside Section (310) 646-4265, prior to conducting such activity on any non-leased areas of the Airport.

b. The run-up of mounted aircraft engines for maintenance or test purposes on both leased and non-leased areas is prohibited between the hours of 2300-0600 unless waived on a case by case basis by the Executive Director or his/her designee, as provided below:

i. The engine(s) will be run in a sound suppression unit that will reduce the sound level at the Airport perimeter to 8dB in A-weighted sound level or less above the ambient background level in surrounding residential areas at the time the run-up is conducted.

ii. A single engine will not be operated to exceed idle power at each leasehold area. If more than one engine is to be checked, each engine must be checked separately.

iii. Auxiliary power units are only operated for maintenance and preflight checks.

c. Idle engine checks, run-ups and auxiliary power units are to be operated at minimum time required to accomplish the necessary maintenance or preflight check.

d. Maintenance or test running of jet engines not mounted on an aircraft is prohibited unless performed in a test cell of adequate design. Said cell shall meet noise level criteria at a measurement distance of 250 feet from the center thereof, as follows:

Octave Band Mid-Band Frequency, Hz	Sound Pressure Level dB re: 20 uPa
31.5	86
63	82
125	77
250	73
500	71
1000	69
2000	67
4000	65
8000	59

7. Imperial Terminal Procedures

a. All turboprop powered aircraft over 65,000 pounds maximum gross landing weight or turbojet powered aircraft (regardless of weight) arriving at the Imperial Terminal will taxi to a position on Taxiway A adjacent to the terminal ramp. At this point, engines will be shut down and the aircraft towed into its assigned parking position.

b. All turboprop powered aircraft over 65,000 pounds maximum gross landing weight or turbojet powered aircraft (regardless of weight) departing the Imperial Terminal will be towed to a position on Taxiway "A" adjacent to the terminal ramp and positioned facing east or west on Taxiway A prior to starting engines.

c. Jet engine runs and run-ups, and turbine-based ground power units are prohibited on the ramp and auxiliary power units may only be operated when required during tow-in or departure.

Exhibit 4

Chapter 2
NOISE AND VIBRATION

7-2-1: DECLARATION OF POLICY:

It is hereby declared to be the policy of the City to prohibit unnecessary, excessive and annoying noises and vibrations from all sources subject to its police power. Therefore, the City Council does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this Chapter, is a public nuisance as well as an infraction and shall be punishable as such. (Ord. 1242, 1-16-1996)

7-2-2: DEFINITIONS:

As used in this Chapter, unless the context otherwise clearly indicates, the words and phrases used are defined as follows:

"A" WEIGHTED SOUND LEVEL (dBA): The total sound level in decibels of all sound as measured with a sound level meter with a reference pressure of twenty (20) micro-pascals using the "A" weighted network scale at slow response. The unit of measurement shall be defined as dBA.

AMBIENT NOISE LEVEL: The all-encompassing noise level associated with a given environment, being a composite of sounds from all sources at the location and approximate time at which a comparison with an intrusive noise is to be made.

CONSTRUCTION: Any site preparation, grading, demolition, assembly, erection, repair, alteration, or similar action, for or of public or private rights of way, structures, utilities or similar property.

DECIBEL (dB): A unit for measuring the amplitude of a sound, equal to twenty (20) times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) micro-pascals.

EMERGENCY MACHINERY, VEHICLE, WORK OR ALARM: Any machinery, vehicle, work or alarm used, employed, performed or operated in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

FIXED NOISE SOURCE: A stationary device which creates sounds while fixed or motionless including, but not limited to, residential, agricultural, industrial and commercial machinery

and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

IMPULSIVE NOISE: A noise of short duration usually less than one second and of high intensity, with an abrupt onset and end.

INTRUSIVE NOISE LEVEL: The total sound level, in decibels (dBA), created, caused, maintained or originating from an alleged offensive source measured at a specific location while the alleged offensive source is in operation.

NOISE: Any sound which annoys or disturbs humans of normal sensitivity or which causes or tends to cause an adverse psychological or physiological effect on humans of normal sensitivity.

NOISE CONTROL OFFICER: The Director of Community, Economic and Development Services.

RESIDENTIAL PROPERTY: A parcel of real property which is developed and used either in part or in whole for residential purposes.

SOUND AMPLIFICATION EQUIPMENT: Any device which produces, reproduces, or amplifies sound.

SOUND LEVEL METER: An instrument meeting American National Standard Institute's Standard S1-4-1971 or most recent revision thereof for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

VIBRATION: Mechanical motion of the earth or ground, building, or other type of structure induced by the operation of any mechanical device or equipment. (Ord. 1242, 1-16-1996; amd. Ord. 1315, 1-18-2000)

7-2-3: SOUND LEVEL MEASUREMENT CRITERIA:

Any sound level measurement made pursuant to the provisions of this Chapter shall be measured with a sound level meter using the "A" weighted scale at slow response for continuous sound levels or at fast response for impulsive sounds. (Ord. 1242, 1-16-1996)

7-2-4: NOISE STANDARDS:

No person shall, at any location within the City, create any noise, nor shall any person allow the creation of any noise within the person's control on public or private property (hereinafter "noise source"), which causes the noise level when measured on any other property

(hereinafter "receptor property"), to exceed the applicable noise standard, except as set forth in subsection C1 of this Section.

A. Residential Property: Five (5) dBA above the ambient noise level.

B. Commercial and Industrial Property: Eight (8) dBA above the ambient noise level.

C. Adjustments:

1. Increases to the noise standards as set forth in subsections A and B of this Section may be permitted in accordance with the following:

NOISE STANDARDS ADJUSTMENTS

Permitted Increase (dBA)	Duration of Increase (minutes)*
0	30
5	15
10	5
15	1
20	less than 1

* Cumulative minutes during any one hour.

2. If the receptor property is located on a boundary between two (2) different noise zones, the lower noise level standard applicable to the quieter zone shall apply. (Ord. 1242, 1-16-1996)

7-2-5: NOISE LEVEL MEASUREMENT:

The location selected for measuring exterior noise levels shall be at any point on the receptor property, and at least four feet (4') above the ground and five feet (5') from the nearest structure or wall. Interior noise measurements shall be made within the receptor residential unit. The measurements shall be made at a point at least four feet (4') from the

wall, ceiling or floor nearest the noise source with windows and doors in a closed position. (Ord. 1242, 1-16-1996)

7-2-6: LOUD, UNUSUAL AND UNNECESSARY NOISES PROHIBITED:

Consistent with other provisions of this Chapter, and in addition thereto, it shall be unlawful for any person to wilfully make, produce, suffer or allow to be produced by human voice, machine, animal, or device, or any combination of same, any loud, unusual, or unnecessary noise which disturbs the peace, quiet, and comfort of any neighborhood, or which causes discomfort or annoyance to any reasonable person of normal sensitivity in the area. (Ord. 1242, 1-16-1996)

7-2-7: STANDARDS; CRITERIA:

The standards which shall be considered in determining whether a violation of the provisions of Section 7-2-6 of this Chapter exists shall include, but shall not be limited to, the following criteria:

A. The frequency of the noise;

B. The intensity of the noise;

C. Whether the nature of the noise is usual or unusual;

D. The ambient noise level;

E. The proximity of the noise to residential sleeping facilities;

F. The nature and zoning of the area within which the noise emanates;

G. The density of the inhabitation of the area within which the noise emanates;

H. The time of the day or night the noise occurs;

I. The duration of the noise;

J. Whether the noise is recurrent, intermittent or constant; and

K. Whether the noise is produced by a commercial or noncommercial activity. (Ord. 1242, 1-16-1996)

7-2-8: SPECIFIC PROHIBITIONS:

The following acts, and the causing thereof, are declared to be in violation of this Chapter if they occur in such a manner as to disturb the peace, quiet and comfort of any reasonable person of normal sensitivity residing in the area; and occur:

A. Between The Hours Of 10:00 P.M. And 7:00 A.M:

1. Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier, or similar device which produces, reproduces or amplifies sound.

2. Using or operating any loudspeaker, public address system or similar device.

3. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects.

4. Repairing, building, rebuilding, adjusting or testing any motor vehicle.

B. Between The Hours Of 8:00 P.M. And 7:00 A.M:

1. Refuse Collection Vehicles:

a. Collection of refuse with a collection vehicle in a residential area or within five hundred feet (500') thereof;

b. Operation or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse in a residential area or within five hundred feet (500') thereof.

2. Loudspeakers/Public Address Systems: Using or operating for any commercial purpose any loudspeaker, public address system, or similar device on a public right of way or public space.

3. Powered Model: Operating or permitting the operation of powered models. (Ord. 1242, 1-16-1996)

7-2-9: VIBRATION:

Notwithstanding other sections of this Chapter, a person shall not create, maintain or cause any ground vibration which is perceptible, without the use of instruments, to any reasonable person of normal sensitivity at any point on any affected property. (Ord. 1242, 1-16-1996)

7-2-10: EXEMPTIONS:

The following activities shall be exempted from the provisions of this Chapter:

A. School And Park Facilities: Authorized activities conducted on public school grounds and City park facilities, associated with normal operation of the facilities including, but not limited to, school and public athletic and entertainment events.

B. Mechanical Or Electronic Devices: Any mechanical or electronic device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within fifteen (15) minutes of its activation.

C. Public Speaking Or Assemblies: Noncommercial public speaking and public assembly activities conducted on any public space or public right of way without the use of sound amplification equipment.

D. Construction Noise: Noise sources associated with or vibration created by construction, repair, or remodeling of any real property, provided said activities do not take place between the hours of six o'clock (6:00) P.M. and seven o'clock (7:00) A.M. Monday through Saturday, or at any time on Sunday or a Federal holiday, and provided the noise level created by such activities does not exceed the noise standard of sixty five (65) dBA plus the limits specified in subsection 7-2-4C of this Chapter as measured on the receptor residential property line and provided any vibration created does not endanger the public health, welfare and safety.

E. Real Property Maintenance: Noise sources associated with the maintenance of real property, provided said activities take place between the hours of seven o'clock (7:00) A.M. and eight o'clock (8:00) P.M. on any day except Sunday, or between the hours of nine o'clock (9:00) A.M. and eight o'clock (8:00) P.M. on Sunday.

F. Activities Preempted By State Or Federal Law: Any activity to the extent regulation thereof has been preempted by State or Federal law, including, but not limited to, aircraft, motor vehicles, railroads and other interstate carriers. (Ord. 1242, 1-16-1996)

7-2-11: PERMITS:

A. Circumstances For Issuance: The noise control officer may grant amplified sound or noise permits to applicants who cannot comply with the requirements of this Chapter if the applicant can show that compliance with this Chapter would constitute an unreasonable hardship on the applicant, on the community as a whole, or on other individuals, or that compliance would be impractical. If the noise control officer determines that sufficient controversy may exist regarding an application, the application shall be referred to the City Council. A permit shall not be granted to waive compliance with Section 7-2-15 of this Chapter.

B. Determination: In determining whether to grant or deny the application, the noise control officer shall balance the hardship to the applicant, the community as a whole, and other individuals, of not granting the permit against the adverse impact on the health, safety, and welfare of persons affected; the adverse impact on property affected; and any other adverse impacts of granting the permit. Applicants for permits may be required to submit any information the noise control officer may reasonably require. The noise control officer shall retain on public file a copy of the decision which shall include a statement of the reason for the decision.

C. Granting Of Permit; Conditions: Permits shall be granted by written notice to the applicant containing all necessary conditions, including a time limit on the permitted activity. The time limit shall be for a maximum time period not to exceed one year. The permit shall not become effective until the applicant agrees to all conditions. In the case of noncompliance with any condition imposed, the permit shall immediately terminate, and the noise source shall be subject to the provisions of this Chapter.

D. Application For Change Of Conditions: Application for extension of time limits specified in subsection C of this Section or for modification of other substantial conditions shall be treated as an initial application for a permit.

E. Guidelines: The noise control officer may issue guidelines defining the procedures to be followed in applying for a permit.

F. Activities Requiring Permit: Unless otherwise specifically exempted by this Chapter, permits shall be required for all exterior activities which utilize amplified sound; such as, but not limited to, outdoor gatherings, dances, shows, performances or carnivals.

G. Appeal: An appeal of the decision of the noise control officer with respect to any amplified sound or noise permit may be made to the City Council in writing within ten (10) days after the action of the noise control officer has been communicated to the applicant. (Ord. 1242, 1-16-1996)

7-2-12: ENFORCEMENT:

A. Responsible Official: The noise control officer is directed to enforce the provisions of this Chapter. During times the noise control officer is not on duty, enforcement shall be the responsibility of the Chief of Police.

B. Interference: No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this Chapter while such person is engaged in the performance of his duty. (Ord. 1242, 1-16-1996)

7-2-13: IMMEDIATE THREATS TO HEALTH AND WELFARE:

A. Order Immediate Halt: The noise control officer may order an immediate halt to any sound which exposes any person to continuous sound levels in excess of those shown in Table A in subsection D of this Section, or impulsive sounds in excess of Table B in subsection D of this Section. Within two (2) working days following issuance of such an order, the noise control officer shall apply to the appropriate court for an injunction to replace the order.

B. Exceptions To Issuance Of Order: No order pursuant to subsection A of this Section shall be issued if the only persons exposed to sound levels in excess of those listed in Tables A and B of subsection D of this Section are exposed as a result of:

1. Trespass;

2. Invitation upon private property by the person causing or permitting the sound; or

3. Employment by the person or a contractor of the person causing or permitting the sound.

C. Remedial Action: Any person subject to an order issued by the noise control officer pursuant to this Section shall comply with such order until:

1. The sound is brought into a compliance with the order, as determined by the noise control officer; or

2. A judicial order has superseded the noise control officer order.

D. Prohibited Sound Level: The sound levels which pose an immediate threat to health and welfare are:

TABLE A

CONTINUOUS SOUND LEVELS
(Measured At 50 Feet Or 15 Meters)

Sound Level Limit (dBA)	Duration
90	8 hours

WAMA-AL00001

95	4 hours
100	2 hours
105	1 hour
110	30 minutes

TABLE B

IMPULSIVE SOUND LEVELS
(Measured At 50 Feet Or 15 Meters)

Sound Level Limit (dB)	Number of Repetitions Per 24-Hour Period
145	1
135	10
125	100

(Ord. 1242, 1-16-1996)

7-2-14: USE OF POLICE AT PARTIES; SECOND RESPONSE:

A. Threat To Public Peace: When a party or gathering occurs at a premises and a police officer at the scene determines that there is a threat to the public peace, health, safety or general welfare, the person in charge of the premises and the person responsible for the event, or if either of those persons is a minor, then the parents or guardians of that minor, will be held jointly and severally liable for the cost of providing police personnel on special security assignment over and above the services normally provided by the Department.

B. Special Security Assignment: The police personnel utilized during a second response after a first warning, to control the threat to the public peace, health, safety or general welfare, shall be deemed to be on special security assignment over and above the services normally provided.

C. Costs Assessed: The costs of such special security assignment may include minor damages to City property and/or injuries to City personnel. The fee charged shall be fixed and established from time to time by resolution of the City Council and shall include a minimum charge. These costs are in addition to any penalties or other remedies set forth in this Chapter and the City reserves its legal options to elect any other legal remedies when said costs or damage exceed the amount fixed and established. (Ord. 1242 , 1-16-1996)

7-2-15: PENALTY; ADDITIONAL REMEDY:

A. Violation; Penalty; Infraction:

1. Any person convicted of an infraction for a violation of this Chapter is punishable by a fine of one hundred dollars ($100.00) per violation.

2. Each such person shall be guilty of a separate offense if, after receiving a written warning or infraction citation, the person commits or continues to commit a violation of this Chapter.

3. If a person is found to be in violation of this Chapter, the noise control officer shall issue a written warning of the violation. If the person continues to be in violation of this Chapter, the noise control officer shall issue an infraction citation. Every violation within a thirty (30) day period after the first written warning is issued shall be considered an infraction.

B. Public Nuisance: Notwithstanding the provisions of subsection A of this Section, as an additional remedy, any violation of the provisions of this Chapter, which causes discomfort or annoyance to reasonable persons of normal sensitivity or which endangers the comfort, repose, health, or peace of residents in the area, shall be deemed, and is declared to be, a public nuisance and may be subject to abatement summarily in the manner provided in Chapter 1 of this Title. (Ord. 1242, 1-16-1996)

Exhibit 5

Both Southern Pacific and Santa Fe Railroads operate daily to Chevron and other industries within El Segundo. Although this is a periodic source of noise rather than continuous, like vehicular traffic, railroads typically produce high magnitudes of noise. Currently, the railroads in El Segundo do not travel through residential areas; however, any land use changes must consider these railroad lines as a significant source of noise.

In addition to mobile sources, stationary noise sources, particularly from industry, contribute to ambient noise levels in the City. General population noise and the short-term noise generated by construction are also important sources.

Along with the identification of noise sources and noise impacted areas, planning for new development and transportation should always consider noise-sensitive land uses (schools, hospitals, etc.). The City of El Segundo has adopted exterior and interior noise standards for various land uses and conditions which are contained in Resolution No. 3691 and in Chapter 9.06 of the Municipal Code.

In light of the existing and foreseeable noise environment in the City of El Segundo, and pursuant to Section 65302 (g) of the California Government Code, the City has adopted a goal with policies and programs designed to minimize the effects of these multiple sources of noise.

Goal N1: Provision of a Noise-Safe Environment

Encourage a high quality environment within all parts of the City of El Segundo where the public's health, safety, and welfare are not adversely affected by excessive noise.

Objective N1-1

It is the objective of the City of El Segundo to ensure that City residents are not exposed to mobile noise levels in excess of the interior and exterior noise standards or the single event noise standards specified in the El Segundo Municipal Code.

Policy N1-1.1

Continue to work for the elimination of adverse noise sources, especially from Los Angeles International Airport West Imperial Terminal, and from helicopter and aircraft flyovers.

Program N1-1.1A

The City shall implement the Airport Abatement Policy and Program (City Council Resolution No. 3691, adopted May 21,

1991, or any future revisions thereto) in its efforts to minimize noise impacts caused by LAX.

Policy N1-1.2
Play an active role in the planning process associated with preparation of the Los Angeles International Airport Master Plan.

Program N1-1.2A
Encourage the City of Los Angeles Department of Airports to adopt and maintain a passenger service level goal and implementation program which will minimize the noise impacts to the City of El Segundo.

Policy N1-1.3
Continue to work with the City of Los Angeles Department of Airports to reduce the noise-impacted area around Los Angeles International Airport to zero.

Program N1-1.3A
Where feasible, the City should use noise barriers to mitigate noise problems that cannot be reduced at their source. Sound walls, berms, and dense landscaping shall be used to reduce exterior noise to levels specified in the City's Noise Ordinance.

Program N1-1.3B
Encourage the implementation of an Airport Mitigation Monitor to be funded by the City of Los Angeles, for the purpose of monitoring the negative impacts of LAX on the City of El Segundo.

Program N1-1.3C
Encourage the City of Los Angeles Department of Airports to pay the additional costs for new residential construction to provide acoustical treatment to mitigate noise impacts to a level that meets land use compatibility standards.

Policy N1-1.4
Consider noise impacts from traffic arterials and railroads, as well as aircraft, when identifying potential new areas for residential land use.

Program N1-1.4A
All plans submitted for development review shall depict the Department of Airport's latest available noise contours for LAX and citywide noise contours.

Policy N1-1.5
Encourage state inspection and enforcement of noise standards for motor vehicles, including those involved in public transit.

Program N1-1.5A
To the degree feasible, monitor noise levels along Sepulveda Boulevard (State Route 1) and, if warranted, work with the state to ensure inspection and enforcement of noise standards for motor vehicles, including public transit.

Policy N1-1.6
Encourage the State Department of Transportation (DOT) to conduct an active highway noise abatement program with scenic/aesthetic consideration for Sepulveda Boulevard (State Route 1).

Program N1-1.6A
To the degree feasible, the City shall participate with DOT in the development of a highway noise abatement program for Sepulveda Boulevard (State Route 1).

Policy N1-1.7
Monitor California Department of Transportation and Los Angeles County Transportation Commission noise abatement measures aimed at minimizing noise impacts associated with the I-105 Freeway and the Metro Rail Green Line.

Program N1-1.7A
Existing and projected noise environments shall be evaluated when considering alterations to the City circulation system.

Program N1-1.7B
Where feasible, the City shall provide adequate setbacks or require noise abatement barriers along the I-105 Freeway in order to protect new development from noise levels above exterior standards.

Program N1-1.7C
All new roadways shall incorporate the following noise mitigation measures into their design: alignment, barriers, vertical profile, and lateral separation.

Policy N1-1.8
Continue to develop zoning, subdivision, and development controls to prevent future encroachment of noise-sensitive uses into present or planned industrial or transportation system noise-impacted zones where adverse effects cannot be adequately mitigated.

Policy N1-1.9
Require review of all new development projects in the City for conformance with California Airport Noise Regulations and California Noise Insulation Standards (CCR Title 24) to ensure interior noise will not exceed acceptable levels.

Program N1-1.9A
All new habitable residential construction in areas of the City with an annual CNEL of 60 dBA or higher shall include all mitigation measures necessary to reduce interior noise levels to minimum state standards. Post construction acoustical analysis shall be performed to demonstrate compliance.

Policy N1-1.10
Continue to develop and implement City programs to incorporate noise reduction measures into existing residential development where interior noise levels exceed acceptable standards.

Objective N1-2 It is the objective of the City of El Segundo to ensure that City residents are not exposed to stationary noise levels in excess of El Segundo's Noise Ordinance standards.

Policy N1-2.1
Require all new projects to meet the City's Noise Ordinance Standards as a condition of building permit approval.

Program N1-2.1A
Address noise impacts in all environmental documents for discretionary approval projects, to insure that noise sources meet City Noise Ordinance standards. These sources may include: mechanical or electrical equipment, truck loading areas, or outdoor speaker systems.

Program N1-2.1B
The City shall establish criteria for determining the type and size of projects that should submit a construction-related noise mitigation plan. Noise mitigation plans shall be submitted to the City Engineer for his review and approval prior to issuance of a grading permit. The plan must display the location of construction equipment and how this noise will be mitigated. These mitigation measures may involve noise suppression equipment and/or the use of temporary barriers.

Program N1-2.1C
The City shall strictly enforce the El Segundo Municipal Code's time-dependent noise standards for stationary sources. Two of the

major sources which shall be closely monitored are industrial facilities and construction activities.

Objective N1-3 It is the objective of the City of El Segundo that the City maintain intergovernmental coordination and public information programs which are highly efficient in their noise abatement efforts.

Policy N1-3.1
Encourage site planning to be consistent with the existing and future noise environment and promote development standards in which noise-sensitive projects and residences are mitigated from major noise sources. Short-term and long-term noise control measures should be formulated in a manner compatible with community needs and expectations.

Program N1-3.1A
Noise regulations and standards shall be developed or updated in conformance with the findings of the General Plan.

Program N1-3.1B
The City shall conduct an educational campaign to inform the public of the consequences of noise and the actions each person can take to help reduce noise. The City shall provide, if appropriate, educational material, group presentations, news releases, studies, and reports to raise public awareness of the adverse effects of noise.

Policy N1-3.2
Work to remove non-conforming land uses (mixed usage such as residential uses in commercial or industrial land use designations) which result in noise incompatibility.

Program N1-3.2A
The City shall develop strategies for the orderly implementation of mitigation measures for present noise-impacted areas, such as residential uses adjacent to the industrial uses.

Policy N1-3.3
Employ effective noise mitigation techniques through appropriate provisions in the building code, subdivision procedures, and zoning and noise ordinances.

Program N1-3.3A
The City shall review and, if necessary, revise the City Noise Ordinance to ensure that proper regulations are being enforced to protect City residents from excessive noise levels from stationary noise sources.

Program N1-3.3B
Noise-related zoning regulations shall be revised to be consistent with the Noise Element.

Program N1-3.3C
When appropriate, the City shall allocate noise impact mitigation costs to the agency or party responsible for the noise incompatibility.

Program N1-3.3D
The City shall use police power to vigorously enforce existing laws relative to noise.

Policy N1-3.4
Urge continued federal and state research into noise problems and recommend additional research programs as problems are identified.

Program N1-3.4A
The City shall apply for the technical, procedural, and funding assistance available at the state and federal level for noise reduction measures.

Policy N1-3.5
Support a continuous effort to evaluate noise levels in the City of El Segundo and to reduce unacceptable noise levels through the planning process.

Program N1-3.5A
The City shall join adjacent jurisdictions (e.g. City of Los Angeles, City of Hawthorne, City of Manhattan Beach) and other agencies involved in noise mitigation in a cooperative effort to lessen adverse impacts and reduce noise incompatibilities across city boundaries.

Exhibit 6

LAX/COMMUNITY NOISE ROUNDTABLE

Recap of the Regular Meeting of September 20, 2010

Roundtable Members Present

Denny Schneider, Chairman, Westchester Neighbors Association
Carl Jacobson, Vice Chairman, Councilman, City of El Segundo
Domingo Orosco, Representing Councilman Bernard Parks
Chad Molnar, Representing Councilman Bill Rosendahl
Beverly Ackerson, PANIC/City of Rancho Palos Verdes
Dennis McLain, Alternate, City of Rancho Palos Verdes
Danna Cope, LAX Area Advisory Committee
Joann Williams, United Homeowners Association
Steve May, FAA Western-Pacific Regional Office
Rolan Morel, FAA LAX Air Traffic Control Tower
Michael Feldman, LAWA
Scott Tatro, LAWA
Kathryn Pantoja, LAWA
David Chan, LAWA
Gene Reindel, Roundtable Facilitator

1. Call to order

Roundtable Chairman Denny Schneider called the meeting to order at 7:05 p.m. in the Samuel Greenberg Boardroom at LAX.

2. LAX/Community Noise Roundtable 10th Anniversary Celebration

Mr. David Chan noted the Roundtable's major achievements of reducing aircraft noise in the surrounding communities over the past 10 years. Chairman Denny Schneider recognized the leadership and efforts of the previous Chairman, Mr. John McTaggart for most of those 10 years. LAWA provided cake and refreshments for all attendees to commemorate this special occasion.

3. Update on the RFP Process for Roundtable Facilitator Position

Mr. David Chan reported that the current contract with Harris Miller Miller & Hanson Inc. (HMMH) to provide Roundtable facilitation services expires at the end of November 2010. LAWA is currently in the process of obtaining a new contract. The Request for Proposals (RFP) was posted on LABAVN for 30 days with a due date of August 16, 2010 for interested parties to submit a written proposal. Subsequently, LAWA received four proposals from the following firms:

- HMMH
- ESA Airports
- Wyle
- BridgeNet

All four firms have passed the City's administrative requirements. LAWA is currently reviewing the written proposals and expects to finish the review by the end of September. Oral interviews will be conducted in the middle of October 2010. After the interview process, LAWA will recommend to the BOAC, in December, the best qualified firm for contract award.

4. Work Program Item IA. – Low-Frequency Noise (LFN)

Gene Reindel gave a brief presentation on low-frequency noise with the intent of providing the members a better understanding on the subject. The presentation also includes summaries of HMMH and PARTNER studies on LFN. The PARTNER Low-Frequency Noise Study is available on-line at: http://web.mit.edu/aeroastro/partner/news/lfn-rpt.html

The studies revealed the following findings:

- Low-frequency sounds propagate further than high-frequency sounds
- Low-frequency noise can induce "feelable" vibrations in residences
- Residences located near runways can experience high levels of low-frequency noise from aircraft
- Standard sound insulation treatments do not sufficiently reduce low-frequency noise
- C-weighted maximum noise level metric is most effective for screening possible low-frequency problems
- C-weighted noise levels correlate with induced vibrations and resident ratings of annoyance
- C-weighted maximum noise level of 80 dB is recommended for screening threshold of low-frequency noise problems

Mr. Chan described the capabilities of LAWA's new Airport Noise and Operations Monitoring System (ANOMS) to measure and report aircraft low-frequency noise events. He also presented the LFN data received from the system, which include the number of C-weighted noise events obtained during the first three weeks of August 2010 that correlated to aircraft flight tracks at a number of fixed noise monitoring sites near LAX. Initial review of the data seems to indicate monitors that were closer to the aircraft registered more noise events than those that were further out.

Member Danna Cope asked whether noise affecting Mar Vista residents could be related to low-frequency noise from aircraft ground operations. Ms. Kathryn Pantoja stated that the noise affecting that community is likely coming from aircraft arriving from the north and the west that fly over the Santa Monica VOR.

Chairman Schneider mentioned that the presentations raise the question of whether CNEL is the right metric given the high number of C-weighted events outside the noise impact contour.

Member Cope inquired whether LAWA can install a monitor in Ladera Heights to measure low-frequency noise. Mr. Chan indicated that the difficulty would be the ability to differentiate vibration from aircraft operations and other community noise sources such as buses since the proposed monitor is located further out from the airport.

5. Work Program Prioritization

Mr. Reindel mentioned that only four Roundtable members had returned the Work Program prioritization forms as a result from the effort to re-prioritize the work program. Mr. Reindel recommended the Roundtable not update the prioritization at this time until sufficient changes have occurred to warrant the update. Chairman Schneider and the members agreed with Mr. Reindel's recommendation.

6. Aviation Noise News Update

The following is a summary of the news update that Mr. Reindel provided to the Roundtable.

FAA Reauthorization Bill - Congress passed another bill to extend the FAA's operating authority through September 30, 2010. This is the 15th extension since the last full authorization expired in 2007. (Note: Subsequently, Congress passed the 16th extension which will allow the FAA to operate under current authorization until December 31, 2010.) In addition, during the Airport Association of Airport Executives-National Airports Conference opening session on Monday, September 20, 2010, the panel members unanimously responded with a "no" when asked if they believed the Reauthorization Bill would be passed this calendar year. The members also indicated that if the Bill is not passed this year, the legislators will have to restart the process to get the Bill passed next year. The panel included representation from the Federal Aviation Administration, Transportation Security Administration, Air Transportation Association, General Aviation Manufacturers Association, and large and small airports.

Airport Cooperative Research Program - The ACRP Oversight Committee selected three airport noise projects for study for fiscal year 2011, as shown below, one of which was recommended by the Roundtable for research consideration (see 02-35).

02-31: Assessing Acoustical Materials Used in Airport Residential Sound Insulation Programs

02-35: Understanding Public Perceptions of Aircraft Noise and Noise-Induced Sleep Disturbance

02-37: Evaluating the Accuracy of the Integrated Noise Model for General Aviation Jet Aircraft

Panels for managing these projects are being formed at this time. For additional information go to the following website: http://onlinepubs.trb.org/onlinepubs/acrp/acrp_announcement2011.pdf

The ACRP is accepting problem statements for fiscal year 2012 until February 2011.

Airport Noise Program Best Practices - The Vancouver Airport Authority and Wyle prepared a report on "best practices" of airport noise programs. The report categorized noise management program measures into the following:

- Land Use
- Ground Operations
- Flight Procedures
- Monitoring
- Communications

The report is available at the following website:
http://www.wyle.com/ServicesSolutions/science/EMMA/AcousticandVibrationConsulting/Resources/DocumentLibrary/Documents/NoiseManagementProgramPractices4-10%20Final.pdf

White House Announcement – President Obama announced a $50 billion infrastructure program to expand and renew airports, roads and railways. The airport portion of the program will help fund transition to NextGen. The program needs approval from Congress to proceed.

7. Roundtable Member Discussion

Proposed Airspace Classification Change at Long Beach Airport

Member Beverly Ackerson voiced her concerns about the FAA's proposed change of the airspace classification from a Class D to a Class C at Long Beach Airport. Her main concern is that the Class C airspace will cover a larger area and may result in changing the existing aircraft routes that were developed to avoid aircraft flying over the Palos Verdes Peninsula. She added that the proposed change would adversely impact the Peninsula since flight training activities involving small planes and helicopters would also be moved to the Peninsula's coastline resulting in more noise over that area. She is requesting the FAA conduct a "complete study" to determine the potential effects of this change on the various areas including the Peninsula.

Mr. Steve May introduced Mr. Rex MacLean who is from the FAA Air Traffic Organization based in Seattle to address the concerns of this proposed change.

Mr. Michael Feldman asked the FAA to start by describing the difference between Class C and Class D airspace designations.

Mr. MacLean stated that the purpose of the proposed change is to increase safety at Long Beach Airport. Currently, FAA does not provide aircraft separation services for Visual Flight Rules (VFR) aircraft operating in the Class D airspace. Pilots operating under VFR in Class D must rely on their own vision and judgment for aircraft separation. In the Class C airspace, FAA provides separation services for all aircraft. With the proposed change in place, the FAA can then separate traffic and provide safe distances between all aircraft in the airspace.

Scott Tatro inquired if this proposed change will affect LAX operations. Mr. MacLean responded that it "should not."

Member Ackerson stated that the area to the west of the proposed Class C airspace will have more traffic problems as some pilots may fly over that area to avoid communicating with the FAA air traffic controllers in the proposed Class C airspace. Mr. MacLean responded that the cost of fuel would likely prevent pilots from deviating from their prescribed routes.

Chairman Schneider commented that this reclassification of the airspace may change pilot behaviors and asked if the FAA should consider increasing the size of the proposed Class C airspace.

Mr. MacLean stated that the FAA would need to justify the size and that the purpose of this project is to provide better aircraft separation services which would increase safety at Long Beach Airport. He added that comments for this project are due on September 21, 2010 and that the project will result in one of the three options: 1) stop, 2) refine, or 3) present as proposed and proceed to rulemaking.

Member Ackerson stated that she is against this proposed change because it will affect traffic to the west.

Mr. Dennis McLain stated that the City of Rancho Palos Verdes is monitoring this project and will submit a comment letter to the FAA. He suggested that the Roundtable send a letter to the FAA asking them to evaluate the potential impacts of this proposed change.

Chairman Schneider indicated that rather than sending a letter now to meet the deadline, he believes it would be better for members to get involved at the next phase of the project since more resourceful information will be available at that time.

Mr. Gene Reindel raised his concern that this project may be beyond the scope of this Roundtable since it will not affect LAX operations. Chairman Schneider said that the members would want to monitor this project to ensure that it would not affect LAX operations.

Member Ackerson asked if the Roundtable can obtain debriefs of actions, and Mr. MacLean stated that the FAA will publish information on the federal register about the progress of this project.

Recent Issues Regarding the Noise Complaint Hotline

Mr. Chan indicated that Ms. Regina Tennelle from Airport Operations Division is present tonight to address the problems callers have experienced with the noise complaint hotline.

Chairman Schneider stated that he has received complaints from people at a recent neighborhood council meeting about the hotline's voicemail box being full and that it was difficult to reach a live person. Ms. Tennelle indicated that her division may have overlooked some responsibilities due to some recent organizational changes. She agreed to look into this issue. She provided her phone number (424) 646-8255 for members who wish to discuss this issue further.

A member inquired on how many calls were received by a live person as compared to calls received by the voicemail. Ms. Tennelle believes that most calls were received via voicemail. She indicated that she is new at this position and that she plans to work with Mr. Scott Tatro and Ms. Kathryn Pantoja to improve this situation.

Chairman Schneider asked what percent of complaints are registered on the web vs. the hotline. Ms. Pantoja responded that about 80% of the complaints are registered on the web. She added that the number of complaints received is skewed because some individuals put in complaints via the web continuously for aircraft flying over their properties that are one or two minutes apart.

Member Danna Cope expressed her disappointment with the response letters that LAWA provides to the public and suggested that the letters should be more specific. Ms. Tennelle stated that she will advise staff in her division to note all the detailed information from the callers so that LAWA can provide specific responses. Mr. Feldman stated that LAWA will look into enhancing the response letters as discussed.

Members requested LAWA provide an update on the noise complaint hotline issue.

Chairman Schneider asked if the members have any subjects they wish to discuss at the next meeting. No responses were made.

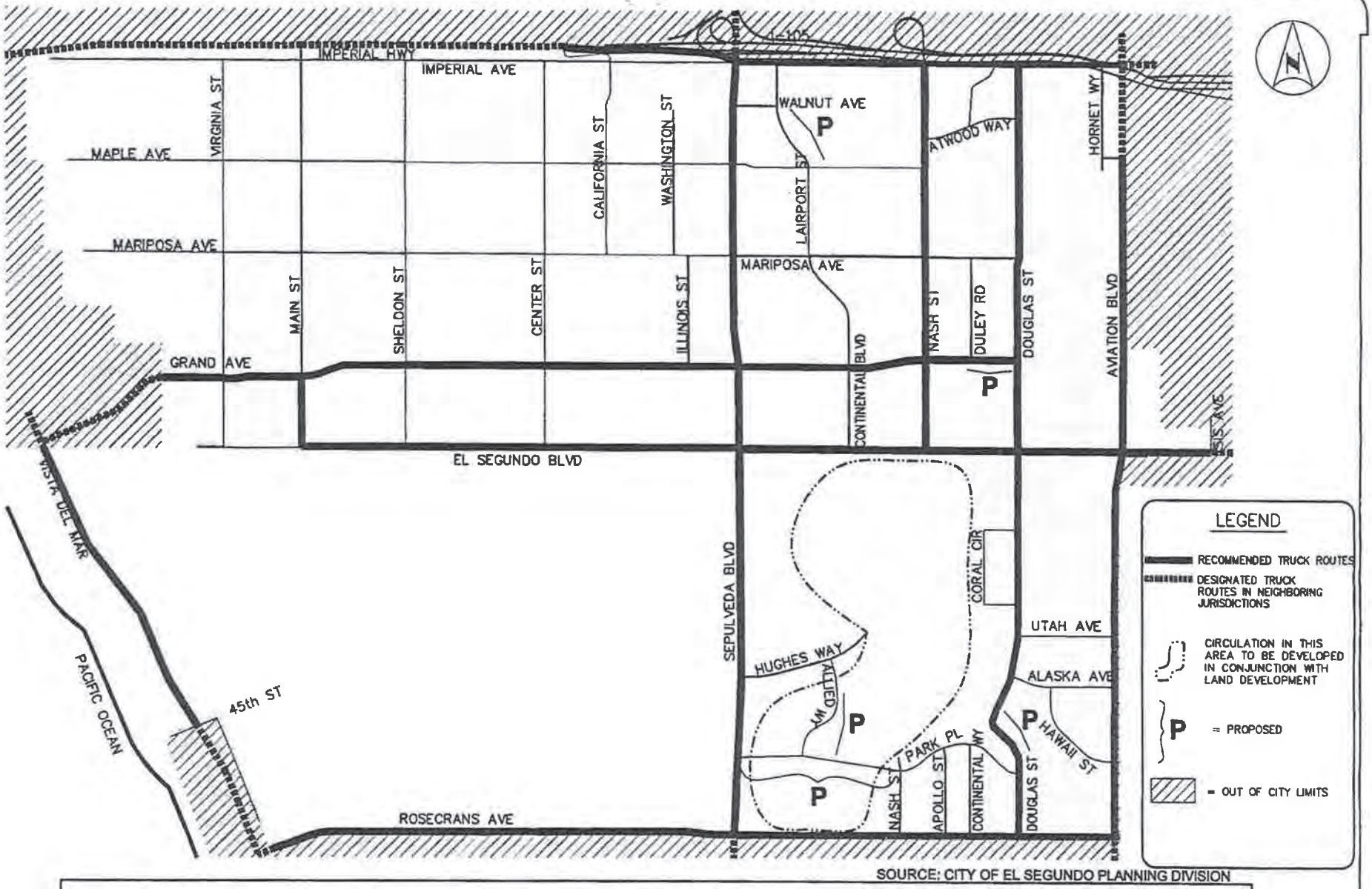
8. Adjournment

Chairman Schneider thanked the FAA for attending the meeting to discuss the proposed airspace change at Long Beach Airport and thanked the Roundtable members for also attending.

The next meeting of the Roundtable will be convened at 7:00 p.m. on Wednesday, November 10, 2010 in the Samuel Greenberg Boardroom at LAX.

Chairman Schneider adjourned the September meeting of the Roundtable at 9:07 p.m.

Exhibit 7



SOURCE: CITY OF EL SEGUNDO PLANNING DIVISION

CITY OF EL SEGUNDO · GENERAL PLAN

Recommended Truck Routes

exhibit
C-13

WAMA-AL00001

Exhibit 8

Goals, Objectives, and Policies

Circulation goals, objectives, and policies are presented as part of the Circulation Element for the City of El Segundo to guide policy makers and City staff in the planning and provision of the City's circulation system. The goals, objectives, and policies were developed through consideration of existing circulation issues, projected circulation needs associated with the Land Use Element, growth outside of the City, and the interests of the residents and businesses of El Segundo. Each of the goals identifies the general direction for the City's circulation system. The objectives outline more specific circulation guidelines for the City's decision makers and staff to work toward. The implementation policies are actions or policies that will assist the City in achieving the identified goals and objectives.

Goal C1: Provision for a Safe, Convenient, and Cost Effective Circulation System

Provide a safe, convenient, and cost-effective circulation system to serve the present and future circulation needs of the El Segundo community.

Objective C1-1 Provide a roadway system that accommodates the City's existing and projected land use and circulation needs.

Policy C1-1.1
Maintain and update the citywide traffic model as needed for purposes of evaluating project-related and external traffic impacts on the City circulation system.

Policy C1-1.2
Pursue implementation of all Circulation Element policies such that all Master Plan roadways are upgraded and maintained at acceptable levels of service.

Policy C1-1.3
Provide adequate roadway capacity on all Master Plan roadways.

Policy C1-1.4
Construct missing roadway links to complete the roadway system designated in the Circulation Element when needed to improve traffic operating conditions and to serve development.

Policy C1-1.5
Implement roadway and intersection upgrades to full Circulation Element standards when needed to improve traffic operating conditions and to serve development.

Policy C1-1.6
Ensure that planned intersection improvements are constructed as designated in Exhibit C-9 to achieve efficient operation of the circulation system at a Level of Service "D" or better where feasible.

Policy C1-1.7
Provide adequate intersection capacity to the extent feasible on Major, Secondary, and Collector Arterials to maintain LOS D and to prevent diversion of through traffic into local residential streets.

Policy C1-1.8
Provide all residential, commercial, and industrial areas with efficient and safe access to the major regional transportation facilities.

Policy C1-1.9
Provide all residential, commercial, and industrial areas with efficient and safe access for emergency vehicles.

Policy C1-1.10
Ensure that new roadway links are constructed as designated in the Master Plan and link with existing roadways within the City such that efficient operation of the circulation system is maintained at an operating Level of Service of "D" or better.

Policy C1-1.11
Ensure that the transition from any Master Plan roadway to another Master Plan roadway at a higher classification operates safely and efficiently, incorporating the appropriate intersection configuration and any turn lanes that are necessary.

Policy C1-1.12
Convert Nash Street and Douglas Street from a one-way couplet to a two-way roadway operation between El Segundo Boulevard and Imperial Highway, incorporating appropriate signage, traffic controls, and other modifications to ensure motorist and pedestrian safety and efficient traffic operations.

Policy C1-1.13
Establish and maintain a citywide traffic count program, to ensure the availability of data needed to identify circulation problems and to evaluate potential improvements.

Policy C1-1.14
Require a full evaluation of potential traffic impacts associated with proposed new developments prior to project approval. Further, require the implementation of appropriate mitigation measures prior to, or in conjunction with, project development. Mitigation measures may include new roadway links on segments that would connect the new development to the existing roadway system, intersection improvements, and other measures. Mitigation measures shall be provided by or paid for by the project developer.

Policy C1-1.15
Pursue and protect adequate right-of-way to accommodate future circulation system improvements.

Policy C1-1.16
Encourage the widening of substandard streets and alleys to meet City standards wherever feasible.

Policy C1-1.17
Encourage cooperation with other governmental agencies to provide adequate vehicular traffic movements on streets and through intersections by means of synchronized signalization.

Policy C1-1.18
Review future developments to ensure uniformity of street naming and avoidance of name duplication or name inconsistencies on a continuous link.

Policy C1-1.19
Continue to monitor the impacts of the I-105 Freeway on local El Segundo streets. If it is determined that freeway traffic is using local streets like California Street as a short cut through the City, evaluate potential mitigations.

Objective C1-2 Provide a circulation system consistent with current and future engineering standards to ensure the safety of the residents, workers, and visitors of El Segundo.

Policy C1-2.1
Develop and maintain a circulation system which shall include a functional hierarchy and classification system of arterial highways that will correlate capacity and service function to specific road design and land use requirements.

Objective C1-3 Ensure that the City's Master Plan Truck Route System efficiently serves the shipping needs of the commercial and industrial land uses in El Segundo while balancing potential conflicts with residential and recreational land uses throughout the City.

Policy C1-3.1
Ensure that the City's designated truck routes provide efficient access to and from the I-105 Freeway.

Policy C1-3.2
Ensure that the development review process incorporates consideration of off-street commercial loading requirements for all new projects.

Policy C1-3.3
Require that all new construction on streets or corridors that are designated truck routes have a Traffic Index calculation as stated by the State Department of Transportation in order to provide a roadway structural section that will accommodate the projected truck volumes and weights.

Policy C1-3.4
Prohibit parking within the public right-of-way on either side two-way alleys. Parking on one side of a one-way alley could be allowed if the alley width is a minimum of 19 feet.

Policy C1-3.5
Ensure that the trucks from the cargo facility north of Imperial Highway at Main Street stay on the City truck route system and do not travel along Main Street.

Goal C2: Provisions for Alternative Modes of Transportation

Provide a circulation system that incorporates alternatives to the single-occupant vehicle, to create a balance among travel modes based on travel needs, costs, social values, user acceptance, and air quality considerations.

Objective C2-1 Provide a pedestrian circulation system to support and encourage walking as a safe and convenient travel mode within the City's circulation system.

Policy C2-1.1
Encourage the development of pedestrian linkages to and from the Metro Green Line stations to encourage and attract intermodal transit/ walking trips.

Policy C2-1.2
Develop a citywide system of pedestrian walkways, alleviating the conflict between pedestrians, autos, and bicyclists throughout the City.

Policy C2-1.3
Encourage new developments in the City to participate in the development of the citywide system of pedestrian walkways and require participation funded by the project developer where appropriate.

Policy C2-1.4
Ensure the installation of sidewalks on all future arterial widening or new construction projects, to establish a continuous and convenient link for pedestrians.

Policy C2-1.5
Encourage the continued use of the 1911 Act to provide missing sidewalk sections where applicable in residential and commercial areas.

Policy C2-1.6
Encourage shopping areas to design their facilities for ease of pedestrian access.

Policy C2-1.7
Closely monitor design practices to ensure a clear pedestrian walking area by minimizing obstructions, especially in the vicinity of intersections.

Objective C2-2 Provide a bikeway system throughout the City to support and encourage the use of the bicycle as a safe and convenient travel mode within the City's circulation system.

Policy C2-2.1
Implement the recommendations on the Bicycle Master Plan contained in the Circulation Element, as the availability arises; i.e., through development, private grants, signing of shared routes.

Policy C2-2.2
Encourage new development to provide facilities for bicyclists to park and store their bicycles and provide shower and clothes changing facilities at or close to the bicyclist's work destination.

Policy C2-2.3
Develop off-street bicycle paths in corridors where appropriate throughout the City.

Policy C2-2.4
Encourage the use of bicycles for trips to and from elementary, middle, and high schools in the area as well as parks, libraries, and other public facilities.

Policy C2-2.5
Continue coordination of bicycle route planning and implementation with adjacent jurisdictions and regional agencies.

Policy C2-2.6
Encourage design of new streets with the potential for Class I or Class II bicycle routes that separate the automobile, bicycle, and pedestrian to the maximum extent feasible.

Policy C2-2.7
Although Hillcrest Street is closed between Imperial Avenue and Imperial Highway to allow emergency vehicular access only, ensure that the link in the Master Plan of Bicycle Routes is maintained, via the Hillcrest Street right-of-way or any appropriate alternative route.

Policy C2-2.8
Evaluate bikeway system links with the Metro Green Line rail stations and improve access wherever feasible.

Objective C2-3 Ensure the provision of a safe and efficient transit system that will offer the residents, workers, and visitors of El Segundo a viable alternative to the automobile.

Policy C2-3.1
Work closely with the Los Angeles County Metropolitan Transportation Authority (MTA), Torrance Municipal Bus Lines, the El Segundo Employers Association (ESEA), and private businesses to expand and improve the public transit service within and adjacent to the City.

Policy C2-3.2
Ensure that transit planning is considered and integrated into all related elements of City planning.

Policy C2-3.3
Evaluate and implement feeder bus service through the City where appropriate. Feeder bus service could potentially take commuters from the fixed transit services (rail and bus) in the eastern portion of the City to the industrial and commercial areas to the west. In addition, midday shuttling of workers east of Sepulveda Boulevard to the Downtown retail area should also be maintained.

Policy C2-3.4
Pursue potential Proposition A and Proposition C funds for bus transit shelters, signing, advertising, and bus turnouts to encourage bus ridership.

Policy C2-3.5
Continue the Dial-a-Ride operation and City subsidy to serve all residents of El Segundo, especially the elderly and handicapped.

Policy C2-3.6
Continue to support the Downtown Lunchtime shuttle operation.

Policy C2-3.7
Explore the feasibility of using excess government right-of-way, purchased property, or land use arrangements for multiple use of existing facilities, in order to establish or construct park-and-ride services of benefit to El Segundo residents and employees.

Policy C2-3.8
Encourage the implementation of park-and-ride facilities proximate to the I-405 and I-105 Freeways for shuttle service into El Segundo.

Policy C2-3.9
Investigate all MTA programs which may be beneficial to the City.

Policy C2-3.10
Encourage the MTA to provide bike storage facilities at the Metro Green Line rail stations.

Objective C2-4 Ensure the use of Transportation System Management (TSM) measures throughout the City, to ensure that the City's circulation system is as efficient and cost effective as possible.

Policy C2-4.1
Establish and maintain a citywide traffic count program to ensure the availability of data needed to identify necessary operational improvements to the roadway system.

Policy C2-4.2
Continue to increase operational efficiencies of the transportation system by implementing all appropriate Transportation System Management (TSM) measures, including but not limited to improving design standards, upgrading and coordination of traffic control devices, controlling on-street parking, and using sophisticated electronic control methods to supervise the flow of traffic.

Objective C2-5 Ensure the use of Transportation Demand Management (TDM) measures throughout the City, where appropriate, to discourage the

single-occupant vehicle, particularly during the peak hours. In addition, ensure that any developments that are approved based on TDM plans incorporate monitoring and enforcement of TDM targets as part of those plans.

Policy C2-5.1
Ensure that Transportation Demand Management (TDM) measures are considered during the evaluation of new developments within the City, including but not limited to ridesharing, carpooling and vanpooling, flexible work schedules, telecommuting and car/vanpool preferential parking.

Policy C2-5.2
Coordinate activities with neighboring jurisdictions and the El Segundo Employers Association (ESEA) to optimize the effectiveness of Transportation Demand Management (TDM) activities.

Policy C2-5.3
Encourage the provision of preferential parking for high occupancy vehicles wherever possible.

Goal C3: Development of Circulation Policies that are Consistent with other City Policies

Develop a balanced General Plan, coordinating the Circulation Element with all other Elements, ensuring that the City's decision making and planning activities are consistent among all City departments.

Objective C3-1 Ensure that potential circulation system impacts are considered when the City's decision makers and staff are evaluating land use changes.

Policy C3-1.1
Require all new development to mitigate project-related impacts on the existing and future circulation system such that all Master Plan roadways and intersections are upgraded and maintained at acceptable levels of service through implementation of all applicable Circulation Element policies. Mitigation measures shall be provided by or paid for by the project developer.

Policy C3-1.2
The minimum acceptable level of service (LOS) at an intersection is LOS D. Intersections operating at LOS E or F shall be considered deficient. If traffic caused by a development project is forecast to result in an intersection level of service change from LOS D or better to LOS E or F, then the development impact shall be considered

significant. If a development project is forecast to result in the increase of intersection volume/capacity ratio (V/C) of 0.02 or greater at any intersection that is forecast to operate at LOS E or F, the impact shall be considered significant.

Policy C3-1.3
Limit intersection improvements to feasible improvements that do not affect buildings, freeway supports, or railroad rights-of-way. Such improvements should not include more than three left-turn lanes, four through lanes, and two right-turn lanes on any approach to an intersection

Policy C3-1.4
Encourage development projects that effectively integrate major transportation facilities with land use planning and the surrounding environment. These joint uses will obtain economic and aesthetic benefits of coordinated design, achieve land conservation in space-short urban areas of El Segundo, and maintain neighborhood continuity in built-up areas affected by future major transportation routes.

Policy C3-1.5
Ensure that transit planning is considered and integrated into all related elements of City planning.

Policy C3-1.6
Apply planning principles and Circulation Element goals, objectives, and policies should apply consistently to all land uses in the City.

Policy C3-1.7
Require submittal and implementation of a Transportation Management Plan (TMP) for all projects within the Urban Mixed-Use area, and encourage a TMP for all projects within the northeast quadrant.

Policy C3-1.8
Require the provision of adequate pedestrian and bicycle access for new development projects through the development review process.

Policy C3-1.9
Ensure that the driveway stacking distance for multi-family housing is evaluated during the development review process.

Objective C3-2 Ensure the consideration of the impacts of land use decisions on the City's parking situation.

Policy C3-2.1
Ensure the provision of sufficient on-site parking in all new development.

Policy C3-2.2
Ensure that the City's parking codes and zoning ordinances are kept up-to-date.

Goal C4: Compliance with all Federal, State, and Regional Regulations

Ensure that the City remains in compliance with all Federal, State, and Regional regulations, remains consistent with the plans of neighboring jurisdictions and thus remains eligible for all potential transportation improvement programs.

Objective C4-1 Cooperate to the fullest extent possible with State, County, and regional planning agencies responsible for maintaining and implementing the Circulation Element to ensure an orderly and consistent development of the entire South Bay region.

Policy C4-1.1
Actively participate in various committees and other planning forums associated with County, Regional, and State Congestion Management Programs.

Policy C4-1.2
Ensure that the City remains in compliance with the County, Regional, and State Congestion Management Programs (CMP) through the development of appropriate City programs and traffic impact analyses of new projects impacting the CMP routes of Sepulveda Boulevard, the I-105 Freeway, and the I-405 Freeway.

Policy C4-1.3
Investigate and evaluate the feasibility and merits of adding more routes that are impacted by external traffic sources, to the County CMP highway system.

Objective C4-2 Ensure that the City's circulation system is consistent with those of neighboring jurisdictions.

Policy C4-2.1
Ensure that new roadway links are constructed as designated in the Circulation Element and link with existing roadways in neighboring jurisdictions to allow efficient access into and out of the City.

Policy C4-2.2
Carefully assess adjacent local agencies' plans to ensure compatibility across political boundaries. This does not imply that such compatibility is a requirement for adoption of the Circulation Element.

Policy C4-2.3
Continuously monitor and evaluate Los Angeles International Airport (LAX) master planning and evaluate the impacts of LAX on the City's Circulation Element.

Policy C4-2.4
Encourage cooperation with other governmental agencies to provide adequate vehicular traffic movements on streets and through intersections by means of synchronized signalization.

Objective C4-3 Establish the City's short-term (5-year) Capital Improvement Program (CIP) consistent with the Circulation Element and the entire General Plan, and ensure that the CIP incorporates adequate funding for the City's circulation needs.

Policy C4-3.1
Identify and evaluate potential revenue sources for financing circulation system development and improvement projects.

Policy C4-3.2
Update the City's 1996 Traffic Congestion Mitigation Fee Program, to reflect changes in planned improvements requiring funding changing needs and changes in the construction cost index.

BuchalterNemer
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E-Mail Address: *blichman@buchalter.com*

December 2, 2013

VIA E-MAIL (LAXSTAKEHOLDERLIAISON@LAWA.ORG)

Los Angeles World Airports
Capital Programming and Planning
Environmental & Land Use Planning
Attn: Lisa Trifiletti, Director
One World Way, Suite 218
Los Angeles, CA 90045

Re: Comments on Draft Environmental Impact Report for the West Aircraft Maintenance Area Project

Dear Lisa:

The following are the comments of the Cities of Inglewood, Culver City and Ontario ("Cities") and County of San Bernardino ("County") (collectively "Cities/County") on the Draft Environmental Impact Report ("Draft EIR") for Los Angeles International Airport ("LAX") West Aircraft Maintenance Area Project ("Project").[1]

Cities/County's principal concerns, in addition to those articulated in Cities' previous comments, relate to the use of Alternative D of the 2005 Master Plan (also Alternative 3 in the currently approved Master Plan) as both the "No Project" alternative, against which the future impacts of the Project will be compared, and the template for on-airport related projects for the purpose of analyzing the Project's cumulative impacts. In both instances, the use of Alternative D is inappropriate for the following reasons.

First, the settlement of the 2005 challenge to the manifest inadequacy of L.A. World Airports ("LAWA") environmental review ("Stipulated Settlement") for the 2005 Master Plan specifically mandated replacement of critical aspects of Alternative D, the "Yellow Light Projects."[2] The Stipulated Settlement remains under the jurisdiction of the court. Consequently,

[1] Cities/County also incorporate here Cities' comments of October 30, 2012 on the Notice of Preparation for the Project as if set forth herein in full.

[2] The "Yellow Light Projects" include "(a) Development of the Ground Transportation Center ('GTC'), including the baggage tunnel, associated structures and equipment; (b) Construction of the Automated People Mover ("APM") from the GTC to the Central Terminal Area ('CTA'), including its stations and related facilities and equipment; (c) Demolition of CTA Terminals 1, 2 and 3; (e) [sic] Reconfiguration of the north airfield as contemplated in the LAX Master Plan, including center taxiways [*i.e.*, movement of the southernmost runway of the

the use of the 10 year old judicially superseded Master Plan Alternative D as the basis for comparison with the future impacts of the Project, instead of the project approved by the L.A. City Council in May, 2013, inevitably leads to a distortion in the analysis of the Project's future environmental impacts, and a manifest violation of CEQA.

For example, Alternative D's plan for the movement of Runway 6R/24L 340 feet south bring those runways closer to what is now planned for the Runway Maintenance Area than the Preferred Alternative adopted in the 2013 Master Plan which moves Runway 6L/24R 240 feet north. The location of the runway to the north may require longer taxi times and potentially longer engine idling times which can have an impact on the EIR's air quality analysis. Similarly, construction impacts may be greater if the North Runway Complex is not moved to the south. In short, the Draft EIR poses a host of unknowns and unaddressed impacts which render it inadequate and in violation of CEQA.

Cities/County therefore respectfully request that LAWA revise the Draft EIR consistent with the Cities' prior comments and with the airfield runway configuration approved by the City Council in May, 2013, and thanks LAWA for this opportunity to comment.

Sincerely,

BUCHALTER NEMER
A Professional Corporation

By Barbara E. Lichman

Barbara Lichman

North Complex, Runway 6R/24L, 340 feet south]; and (f) Improvements to on-site roadways associated with (a) and (b) above," Stipulated Settlement, "Definitions;" *see also* § V.D.1.

FORM GEN. 160 (Rev. 11-02)

CITY OF LOS ANGELES
INTERDEPARTMENTAL CORRESPONDENCE

Date: November 6, 2013

To: Cynthia Guidry, P.E.
Director
Capital Programming and Planning Group
Los Angeles World Airports, MS #101

From: Michael Patonai, District Engineer
West Los Angeles District

Subject: **WEST AIRCRAFT MAINTENANCE AREA PROJECT (REF #174099)**

Your request for review of this project by the Bureau of Engineering was referred to the West Los Angeles District Office for my reply.

After a review, we find no current Public Works project that would be affected by the construction of your project.

I would also point out a few areas that we would review during the design/construction phase. The following items would be looked at:

1. Possible dedication of 2-foot on the Pershing Drive frontage with construction of a 12' wide sidewalk.
2. Protect in place the North Outfall Sewer (NCOS). Obtain approval from the Bureau of Sanitation.
3. Submit an approved Standard Urban Storm Water Mitigation Plan (SUSMP) to WLA District Office, Bureau of Engineering (BOE) B-Permit Section.
4. Submit completed site/roof drainage plan and erosion control plan and grading plan to WLA BOE B-Permit section.
5. Submit Hydrology report (pre and post construction) and to WLA BOE for review and approval.
6. Submit completed detention basin B-permit construction plan and detention basin calculation to WLA BOE B-Permit section for review and approval.
7. Contact LA County Flood Control District to discuss any potential requirements that may pertain to the proposed project including the ultimate storm flow discharge associated with the proposed work via existing city storm drain system located in Pershing Drive to the existing LA County Storm Drain pipe located in Imperial Highway.

If you have any further questions, please contact me at (310) 575-8381.

MP:mjw
Q:Common/Memo-Ltr/WAMA Project

CC: BOE Office Services Section

December 2, 2013

Mr. Herb Glasgow, Chief of Airport Planning
City of Los Angeles, Los Angeles World Airports
1 World Way, Room 218B
Los Angeles, CA 90045

Dear Mr. Glasgow:

DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
LAX WEST AIRCRAFT MAINTENANCE AREA PROJECT (PROPOSED PROJECT)

Thank you for the opportunity to review the DEIR for the Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project. The proposed project is to consolidate, relocate, and modernize the existing aircraft maintenance facilities at LAX, consistent with the LAX Master Plan. The proposed Project would allow for more efficient and effective maintenance of existing aircraft at the airport, including Aircraft Design Group (ADG) VI aircraft (Airbus A380s and Boeing 747-8s). The proposed Project would include aircraft parking and maintenance facilities, employee parking areas, and related storage, equipment and facilities. The proposed Project would be able to accommodate up to 10 ADG VI aircraft simultaneously or a mix of smaller aircraft on the site.

The following are County of Los Angeles, Department of Public Works comments and are for your consideration and relate to the environmental document only:

Hydrology and Water Quality:

1. Section 4.4.6.1 Hydrology, Item 4.4.6.1.1 Drainage, Table 4.4-4 Peak Stormwater Runoff Flows Under the Proposed Project, Page 4.4-24; the DEIR did not include detailed hydrologic calculations and hydrologic maps to verify the peak flow rates itemized on the table. The source of the information on Table 4.4-4 was given as *"City of Los Angeles, West Maintenance Area, Los Angeles International Airport, Engineer's Design Report, - Drainage Design Report, 100% Design Submittal, prepared for Los Angeles World Airports by Atkins, August*

2013." Submit a copy of the Drainage Design Report for review and approval to our Public Works, Water Resources Division.

For questions regarding the hydrology and water quality comment 1, please contact Mr. Peter Imaa of Water Resources Division at (626) 458-6174 or pimaa@dpw.lacounty.gov.

2. Section 4.4.3.1.2 Water Quality – National Pollutant Discharge Elimination System Program, item NPDES – Municipal Permit, Page 4.4.5; the new Stormwater Permit was adopted in 2012, and the language should be revised to remove references to the 2001 Stormwater permit, including language on the Principal Permittee (the 2012 permit does not designate one).

3. Section 4.4.3.1.2 Water Quality, Water Quality Control Plan, Page 4.4-4; the pollutants of concern associated with wet weather flow should be evaluated and based on information from the Water Quality Control Board not the Santa Monica Bay Restoration Plan.

4. Section 4.4.3.1.2 Water Quality, Water Quality Control Plan, Pages 4.4-4 and 4.4-5; reference to the Basin Plan language should be revised to reflect the current status of the Santa Monica Bay Bacteria and Debris Total Maximum Daily Load (TMDL). The bacteria TMDL was revised in 2012, while the Debris TMDL has been in effect since March 2012 and the Ocean Plan was revised in 2012.

5. Section 4.4.3.1.2 Water Quality, Total Maximum Daily Load (TMDL) Program, Table 4.4-1, Adopted TMDL's for Santa Monica Bay and Table 4.4-2, Future TMDL Completion Schedule for Santa Monica Bay Offshore and Nearshore, pages 4.4-7 & 4.4-8; the information presented in Table 4.4-1 should be revised based on current status of TMDLs and 303(d) listings for the Santa Monica Bay. A TMDL for Dichlorodiphenyltrichloroethane (DDT) and Polychlorinated Biphenyls (PCBs) that have already been developed (and in effect) and should be incorporated to Table 4.4-1. This current status of the TMDL also addresses the other two listings (fish advisory and sediment toxicity) as shown in Table 4.4-2 and Table 4.4-2 is obsolete.

For questions regarding the hydrology and water quality comments 2 through 5, please contact Mr. Youssef Chebabi of Watershed Management Division at (626) 458-4313 or ychebabi@dpw.lacounty.gov.

If you have any other questions or require additional information, please contact Ruben Cruz of Land Development Division at (626) 458-4910 or rcruz@dpw.lacounty.gov.

RC:
P:\ldpub\SUBPCHECK\Plan Checking Files\Zoning Permits\NonCounty Projects\LAX West Aircraft Maintenance Area\LAX West Aircraft Maintenance Area DEIR DPW response.docx

County of Los Angeles
Regional Planning Commission
Airport Land Use Commission

November 20, 2013

Brenda Martinez-Sidhom, Stakeholder Liaison
Los Angeles World Airports, Stakeholder Liaison Office (SLO)
One World Way, Suite 219
Los Angeles, CA 90045

SUBJECT: NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND LAX PLAN COMPLIANCE REVIEW FOR THE WEST AIRCRAFT MAINTENANCE AREA PROJECT

Dear Ms. Martinez-Sidhom:

Thank you for the opportunity to comment on the Notice of Availability (NOA) of a Draft Environmental Impact Report (DEIR) and Los Angeles International Airport (LAX) Plan Compliance Review of the West Aircraft Maintenance Area project for the consolidation, relocation, and modernization of existing aircraft maintenance facilities at LAX. Staff of the Los Angeles County Airport Land Use Commission (ALUC) has reviewed the documents you provided and has the following comments:

- In December 1991, the Los Angeles County Regional Planning Commission in its capacity as the ALUC adopted the Airport Land Use Plan (ALUP) for the county's fifteen public use airports. For each airport the ALUC adopted planning boundaries, also known as the airport influence area (AIA), within which certain proposed local actions must be submitted to the ALUC for review. Staff has determined that the subject property is located within the AIA for LAX.

- The proposed project is an implementation of the LAX Master Plan and is not a type of land use action which requires ALUC review as listed in Sections 1.5.1, 1.5.2 and 1.5.3 on pages 2-5 through 2-8 of the ALUC Review Procedures and therefore does not require review by the ALUC for an Airport Land Use Plan consistency determination.

If you have any questions, please contact David McDonald of my staff at (213) 974-6425 or by email at dmcdonald@planning.lacounty.gov, Monday through Thursday between 7:30 a.m. and 5:30 p.m. Our offices are closed on Fridays.

Richard J. Bruckner
Director
Dept. of Regional Planning

Rosie O. Ruiz
Secretary of Commission

Very truly yours,

Carmen Sainz, Supervising Regional Planner
Community Studies East

CS:PE:DM

Southern California Gas Company

A Sempra Energy utility®

DATE RECEIVED:

DEC - 3 2013

LOS ANGELES WORLD AIRPORTS
nvironmental & Land Use Planning

James Chuang
Environmental Specialist/Land Planner

Natural Resources & Land Planning
Mail Location GT17E2
555 W. Fifth Street
Los Angeles, CA 90013-1036

Tel: 213.244.5817
Fax: 323.518.2324
E-mail : WCChuang@semprautilities.com

November 27, 2013

Ms. Lisa Trifiletti
Director of Environmental & Land Use Planning
Los Angeles World Airports, Capitol Programming and Planning
One World Way, Suite 218
Los Angeles, CA 90045

Re: **West Aircraft Maintenance Area Project Draft Environmental Impact Report**

Dear Ms. Trifiletti :

Southern California Gas Company (SCG) appreciates the opportunity to review and respond to the Project's Draft Environmental Impact Report. We respectfully request that the following comments be incorporated in the subsequent Final Environmental Impact Report (FEIR).

SCG recommends that the FEIR include a discussion of activities associated with the relocation of existing service. At present, there is no mention of any existing facilities that would have to be relocated. This additional discussion should include:

- The presence and condition of existing utility infrastructure on the project site, including right-of-ways and/or easements.
- The number and description of any new natural gas facilities that will have to be constructed or installed, in order to provide natural gas service to the proposed project.
- Identification of any exiting natural gas infrastructure that would need to be relocated and/or abandoned, in order to provide natural gas service to the proposed project.
- Identification of any actions that would require permitting or acquisition of new right-of-way or easements for natural gas service to the project.

In addition, any environmental mitigation required for the potential impacts associated with the construction of gas service to the project should also be addressed as part of the responsibility of the "larger" West Aircraft Maintenance Area Project development project.

Once again, we appreciate the opportunity to comment on the DEIR. If you have any questions, please feel free to contact me at (213) 244-5817 or WCChuang@semprautilities.com.

Sincerely,

James Chuang
Environmental Specialist
Southern California Gas Company

December 2, 2013 via email: ltriffiletti@lawa.org

Ms. Lisa Trifiletti
Director
Los Angeles World Airports
Capital Programming and Planning
Environmental & Land Use Planning
1 World Way, Suite 218
Los Angeles, CA 90045

Re: West Aircraft Maintenance Area Draft EIR, City Clerk Number: EIR-13-013-AD

Dear Ms. Trifiletti:

ARSAC, the Alliance for a Regional Solution to Airport Congestion, provides these comments in response to the LAX West Aircraft Maintenance (WAMA) Draft EIR.

ARSAC acknowledges that the Ground Run-up Enclosure (GRE) has been removed from the WAMA and that LAWA is considering a separate EIR for two GRE's. ARSAC remains concerned about the location of GRE's on the LAX airfield such that these GRE's do not increase aircraft noise in all communities surrounding LAX.

ARSAC appreciates the opportunity to provide input into future GRE locations. As we have expressed in person, LAWA should look at other airports for best practices for GRE's including the consideration of a fully enclosed hush house (Tokyo Narita Airport) into the range of alternatives for GRE's. Consideration of best practices at other world class airports would be in keeping with Mayor Garcetti's vision to have LAX as a "world class airport that is a first class neighbor." Since the WAMA will not have a GRE, ARSAC would like ground run-ups and Auxiliary Power Unit (APU's) operations to be prohibited at the WAMA.

ARSAC is also concerned about LAWA's EIR process. Several times, LAWA publishes Notices of Preparation (NOP), Draft and Final Environmental Impact Reports/Statements or deadlines for comments to the same during the holidays (Christmas, Hanukkah, etc.) at the end of year. This holiday timeframe can limit or depress public participation. Also, the Open House, hosted by LAWA on the WAMA Draft EIR was held on the same night as the Neighborhood Council of Westchester/Playa del Rey board meeting and the LAX Coastal Chamber of Commerce "City of Angels" awards dinner. Again, the public lost out on an outstanding opportunity to ask LAWA staff and their consultants about many different aspects of the proposed WAMA project. Our Vice President Robert Acherman did attend the open house and had an excellent dialogue with LAWA staff and their consultants.

ARSAC also acknowledges that LAWA did extend the comment periods for both the NOP and the DEIR. ARSAC appreciates LAWA's voluntary extension of those deadlines.

ARSAC may submit additional comments in response to this Draft EIR.

If you have any questions, then please contact us.

Sincerely,

Denny Schneider
President
(213) 675-1817
denny@welivefree.com

Robert Acherman
Vice President
(310) 927-2127
racherman@netvip.com

cc: Hon. Eric Garcetti, Mayor

Hon. Mike Bonin, Councilman, 11th District

Brenda Martinez-Sidhom, LAX Stakeholder Liaison,

LAXStakeholderLiaison@lawa.org

--

Denny Schneider 310 641-4199 voice 213 675-1817 mobile

Alliance for a Regional Solution to Airport Congestion
322 Culver Boulevard, #231 Playa del Rey, CA 90293
info@regionalsolution.org

October 30, 2012

Mr. Herb Glasgow
Senior City Planner, City of Los Angeles
Los Angeles World Airports
1 World Way, Room 218
Los Angeles, CA 90045

Re: West Aircraft Maintenance Project SCH# 2012091037 NOP

Dear Mr. Glasgow,

We appreciate the opportunity to comment on this Notice of Preparation for the West Aircraft Maintenance Area (WAMA).

ARSAC strongly supports the modernization of LAX to improve the competitive position of the Southern California region and to maintain excellence in support of the customer airlines at LAX. With that in mind, we present these comments to ensure integrity in the project development and evaluation process.

We have a general concern about the integrity of the approval mechanisms in place by LAWA used for this and other projects in process at LAX. Each project environmental review is tiered to an Alternative D Master Plan EIR which does not contain or reference many of the elements of these projects. Alternative D Master Plan is so fragmented and convoluted by a lack of specificity that it provides neither a road map for future growth nor insight into what is being planned. It appears to be incremental expansion run amuck instead of effective planning.

We ask that strict mitigation measures for the WAMA, especially the Ground Run-up Enclosure (GRE) area be identified to minimize noise and pollution including.

1. A fully enclosed GRE, or "hush house", such as that in use at Tokyo Narita Airport.
2. Eusure operating aircraft engine noise do not face El Segundo, Playa del Rey or Westchester.
3. Ensure use of ground electrical power so that aircraft do not have to use their APU's.
4. Install noise monitoring equipment, and clearly identify and enforce rules and penalties for noise violations in the maintenance area.
5. Validate a Contamination prevention plan and a response plan for WAMA structures and enforce peualties for contamination.
6. Provide filtering of all runoff and wastewater.

Are the proposed WAMA facilities to replace existing maintenauce facilities? If so, which ones? Who will be the tenants? Will the WAMA be under exclusive leases (e.g. to one airline or group of airlines)?

What other locations did LAWA consider for WAMA? Why were those locations rejected? How does this integrate with the cross field taxiways R and S and their build/repair schedule?

Under the Noise Variance issued by the California Department of Transportation (CalTrans), LAWA is obligated to install three GRE by 2015. Will LAWA incorporate its noise variance obligations into the EIR for the WAMA to show how this will be met? What are the locations LAWA planned for the second and third GRE?

Engine run-ups generate loud bursts of jet noise audible in El Segundo, Westchester and Playa del Rey. Will LAWA add fully enclosed Ground Run-up Enclosure (GRE) similar to the fully enclosed hangar GRE in use at Tokyo Narita Airport (NRT)? Please compare the noise suppression abilities of a fully enclosed GRE versus the LAWA proposed GRE.

The Continental Airlines hangar site is known to be contaminated. This is the same location used to prepare the Space Shuttle Endeavour for its journey across Westchester, Inglewood and South Los Angeles to its final home at the California Science Center. What are the containments at this location? What is LAWA doing to clean-up the containments? Will any of the containments used at the Continental hangar also be used at WAMA? What mitigation measures will LAWA put in place at WAMA to prevent similar contamination? What construction techniques, operational procedures and safety training will be used to prevent contamination? What are the emergency spill response plans?

In the proposed site plan, there is a proposed storm water collector along the western edge of the site. In aircraft maintenance operations, many hazardous substances are used, including, but not limited to, aviation kerosene, oils, lubricants, solvents and paints. Will LAWA filter all wastewater and all storm runoff water to prevent soil and water contamination?

What will be the hours of operation of the hangars? What types of work will be performed and during what time frames during a 24 hour day?

In the LAX Master Plan and the LAX Coalition settlement agreements, LAWA committed to gate electrification at the passenger terminals and cargo areas. Will the hangars, adjoining ramp area and GRE be supplied with ground electrical power? Has LAWA completed gate electrification at all LAX terminals? If not, when will the gate electrification work be completed? Please provide a list of gates electrified. Has LAWA completed ground power outlets at all LAX cargo terminals? If not, when will the cargo electrification work be completed? Please provide a list of cargo ramp spaces electrified. Has LAWA completed ground power outlets at all LAX maintenance? If not, when will the maintenance area electrification work be completed? Please provide a list of maintenance area spaces electrified.

We are concerned about ingress and egress. Ground traffic ingress and egress for the proposed site plan shows an entrance and exit to the hangar parking lot where traffic going north on Pershing Drive dumps onto World Way West. Traffic extends south on Pershing Drive and exiting on World Way West also dumps into the traffic merging from Pershing North. How will traffic going south on Pershing and exiting on World Way West safely access the hangar parking lot? The exit from the WAMA parking lot appears to force drivers to continue east on World Way West and then proceed to some point to turnaround to go west again. Where will this turnaround point be located? Will drivers be able to immediately turn left out of the WAMA parking lot? Will the entrance to the proposed WAMA parking be placed before or behind the existing vehicle checkpoint on World Way West?

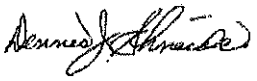
How will lighting in this area be controlled? Considering that the proposed project site is near an active runway, what measures has LAWA considered to prevent lighting from distracting pilots landing,

taxiing or taking off on the south runways? In westerly operations? In easterly operations? In over-ocean operations? How will LAWA conceal lighting in this area from radiating out to residences in El Segundo, Playa del Rey and Westchester?

Is the proposed WAMA site home to any endangered species such as the El Segundo Blue Butterfly or the Riverside Fairy Shrimp? Are there other plants, animals, insects or organisms likely to be affected by the proposed project?

Please contact me with any questions: (213) 675-1817 or denny@welivefree.com

Sincerely,



Denny Schneider
President, Alliance for a Regional Solution to Airport Congestion

23	REQUESTPANATAG	pafpio12@gmail.com	BALGTAS	Ca	3016	WAMA LAX Plan Compliance Review	PANATAG SOLUTIONS of our authority due various cases of human rights violations.public notices station in down town areas all over the province	11/3/2013

11-15-13

Attn: Ms. Trifiletta,

In regards to the West Aircraft Maintenance Area Project: this area was designated for golf course, parks and public usage in the 1960's & 70's.

At that time our newer southernmost homes on that beautiful beach front ~~homes~~ were taken, cutting our Playa del Rey community in half. Many promises were broken and this area became a wasteland fenced off by LAX.

Many residents relocated to the older north end. Our lovely beach community was here much before the airport, then located east of Sepulveda. Now our fractured community is once again being threatened by the airport; more noise by revving up engines along with more pollution! Stop destroying any beautiful nature left in our bereft city and leave something for the next generation.

How far will LAWA go before it takes the entire city? There is so little natural space left as it is!

Move all maintenance facilities out to an open location & help to preserve these areas as God made them. Thank You.

(a resident since 1958.) Eve Bowen

LAX
Los Angeles World Airports

WRITTEN COMMENT FORM

WEST AIRCRAFT MAINTENANCE AREA PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)
PUBLIC WORKSHOP: NOVEMBER 5, 2013

The purpose of the public workshop is to present findings of the Draft EIR and provide the opportunity for the public and responsible agencies to review and inquire about the Draft EIR during the public circulation period. No decisions on the proposed Project will be made during the public workshop. In the space below (and on additional pages, if necessary), please provide any written comments you may have concerning the Draft EIR for the proposed Project. Written comments must be received (not postmarked) by **5:00 p.m., December 2, 2013.**

Date: 05NOV13

Name: TOMMY ROYS

Organization: —

Address: 7577 McCONNELL, WESTCHESTER 90045

Comment:
IS AN 'AIRCRAFT MAINTENANCE PROJECT' THE BEST USE OF AIRPORT FUNDS?
SHOULDN'T THE TERMINALS COME FIRST? OR THE CRUMBLING UPPER ROADWAY?.
YOUR CHARTS SHOW 'NO INCREASE IN FLIGHTS OR PASSENGERS' YET I WAS TOLD THIS IS NEEDED TO ALLOW ROOM FOR ALL THE PLANES THAT WANT TO COME IN BUT CAN'T. DUE NOT ENOUGH ROOM.
LAX PLAN IS TO INCREASE PLANES + PASSENGERS!
THIS IS A MAJOR CONTRADICTION!

Please drop completed form into the box marked "COMMENTS" at the November 5, 2013 public workshop or mail to:

Los Angeles World Airports
Capital Programming and Planning, Environmental & Land Use Planning
Attention: Lisa Trifiletti, Director
One World Way, Suite 218
Los Angeles, CA 90045

All comments must be received no later than **5:00 p.m., Pacific Time, Monday, December 2, 2013.**

This form can simply be folded and placed in a mailbox. Please remember to add postage.

Appendix B

Resumes of Aviation Experts

BUCHANAN, CARY

Chief of Operations I, Los Angeles World Airports

YEARS OF EXPERIENCE

23 (10 with LAWA, 11 with Alaska Airlines, 2 with other)

EDUCATION

Embry-Riddle Aeronautical University
B.S. Professional Aeronautics **2006**
Airport/Airline Management
Minor: Business Management
Honors: Graduates Suma cum Laude

Central Washington University
Aviation Department **1992**
Studied Airport/Airline Management

Green River Community College
Aviation Department **1990**
Studied FAA Air Traffic Control

QUALIFICATIONS

Mr. Buchanan, with 23 years of experience in the aviation industry, has a working knowledge of its complex and dynamic atmosphere. He has been exposed to the requirements of air traffic control, airline ground and flight operations, emergency management and response, airport management, and construction related activities at an airport. He is familiar with the regulations governing airport and airline operations as well as project management theories for construction related activities.

WORK EXPERIENCE

LAWA
06/2010 – Present

Performed the function of a Duty Manager (Chief of Operations I). Duties included but weren't limited to: Managing shift work employees for airport activities, managing a consolidated construction desk for airport related projects, creating and implementing policies and procedures to ensure an effective work force. Participated in the creation of a joint-use facility with Airport Police, LAWA CMS, and the TSA to establish a unified command structure for activities and events on and around airport property.

09/2007 – 06/2010

Performed the duties in association with being a duty superintendent. Duties included but were not limited to: ensuring proper compliance with federal regulations, emergency management and emergency management certification, maintain positive relationship with both internal and external stakeholders, managed staff for daily shift work. Took active roles to ensure efficient operations at Los Angeles International Airport. Conducted training classes on proper practices and procedures for stakeholder and tenant operations. Managed a major renovation project at the Tom Bradley International Terminal (TBIT). Chaired meetings with outside and inside agencies in an effort to bring about unilateral policy. Provided a stable customer service base for the tenants of TBIT.

Performed the duties of the LAX SAFE program administrator. Responsibilities include the development, implementation and monitoring of the SAFE program for LAX. Creation and presentation of statistical data for airport management and airport tenants. Ensure positive

public relations for program effectiveness. Participate in bi-monthly meetings with airport tenants for program status and updates. Provide verbal and written communication for SAFE citation issuance and related penalties for tenant employees. Conduct hearings with tenant employees for citation review and education of SAFE program guidelines and expectations. Maintain a file retention system for historical data. Serve as liaison between Airfield Operations and LAX Airport Police.

2003 - 2007

Assisted the construction Superintendent with airport related construction projects. Duties included the review of construction plans to mitigate the impact to aircraft operations. Coordination and presentation of scheduled and non-scheduled maintenance and construction activities for LAX Airfield Operations duty personnel. Presentation of a weekly “construction brief: for airport personnel and airport tenants. Maintain and provide update for a web based information page of construction activities. Worked directly with various airport and non-airport agencies for project coordination. Provide feedback for airport construction projects to maintain consistent airport operations.

Performed the duties of a Superintendent of Operations for the Terminal Operations Division as an emergency appointment. Duties included but were not limited to: Providing gate assignments, enforcing rules, regulations, and policies for the tenants at the Tom Bradley International Terminal. Conducted terminal inspections for TBIT, Terminal Three and Terminal Six. Also coordinated with other department areas as well as tenants to ensure a positive operation for the airport. Routinely made decisions to promote and maintain a health workplace.

Performed daily and monthly inspections in regards to FAR parts 139 and 77 to ensure compliance. Provided escorts for non-piloted aircraft. Worked directly with other airport personnel for taxiway and runway closures for routine maintenance. Worked with Airport Police and LAFD for safety and security issues. Used direct communication with local ATCT for a smooth flow of daily aircraft operations. Acted as a point of contact for airport tenants.

Monitored and maintained a smooth operation for the LAX station in regards to aircraft movement, flight routings, scheduling, international operations, unforeseen challenges and special operations. Supervised operations agents for daily shift work, schedules, policy implementations and disciplinary decisions. Assisted Ground Operations Supervisor with ramp/cargo procedures with local contract service companies. Performed aircraft separation on the ground for Ramp Tower duties. Acted as a liaison for Alaska Airlines between the FAA and other airport organizations for the LAX station.

Alaska Airlines
1997-2003

Worked as a Supervisor of Ramp/Tower Operations. Oversaw the implementation of the Ramp Tower for the D10 Taxilane at LAX. Provided ground separation for aircraft within the D10 Taxilane. Supervised the operations work force responsible for weight and balance calculations. Worked directly with the other divisions within Alaska Airlines to ensure on-time performance.

1992-1997

Worked within the aircraft maintenance department in various capacities.

CERTIFICATES

FAA Airman Certificate
NIMS/ICS 100,200,300,700, and 800
TEEX Incident Management

MEMBERSHIPS

American Association of Airport Executives
Aircraft Owners and Pilot Association

ARNOLD I. ROSENBERG, P.E.

Senior Vice President, Parsons Brinckerhoff, Inc.
Principal Project Manager/Principal Professional Associate

Years of Experience
42 (31 with Parsons Brinckerhoff; 11 with others)

Education
B.S., Civil Engineering, The Ohio State University, 1972
Additional Studies: Business Administration/Management, Old Dominion University/Tidewater Community College, 1978-1980

Professional Affiliations
American Society of Civil Engineers; National Society of Professional Engineers: National Director (Virginia), 1992-1994; Virginia Society of Professional Engineers: President, 1990-1991

Professional Registrations
Professional Engineer: Virginia, 1976 (008949); Florida, 1979 (0027545); South Carolina, 1988 (12500); Texas, 1996 (81823); Ohio, 2000 (66488); Illinois, 2010 (062.062340); Pennsylvania 2011 (PE078416); Maryland, 2012 (41625); New York, 2013 (091939); Georgia (PE037737); National Council of Examiners for Engineering and Surveying (NCEES), 2003 (23307)

Key Qualifications
Mr. Rosenberg has dedicated his 40-year career to the delivery of complex transportation infrastructure and public works projects, with a concentration over the past 25+ years on large-scale aviation capital development programs. He has comprehensive knowledge of all aspects and phases of capital program delivery, including program definition, public-private funding, alternative delivery methods, program/construction management, tenant coordination, and public/stakeholder outreach. Mr. Rosenberg understands that the key to success of a multibillion-dollar, multi-year airport capital program lies in the prioritization and phasing of improvements to meet the operator's most pressing needs as well as available funding while maintaining existing operations. He has assisted clients in construction, rehabilitation, and modernization of airports and aviation facilities across the United States. Mr. Rosenberg's innovative approaches to construction and program management were recognized by his peers when the American Society of Civil Engineers (ASCE) awarded him its Construction Management Award for 2004.

Aviation

- Los Angeles International Airport (LAX), Los Angeles, California: leading the program definition team in analyzing the CIP and breaking the program into actionable project elements to advance into the environmental process and then design and construction for Phase 1 of the $10 billion, 10-year LAX CIP. Efforts entail developing procurement strategies; contract packaging schemes, program standards, design specifications and program definition/contract documents, and evaluating alternative project delivery methods. Phase 1 program elements include:
  - Tom Bradley International Terminal West improvement/expansion ($1 billion)
  - Airside improvement program ($500 million)
  - Central utility plant replacement ($500 million)
  - West maintenance area development ($1 billion)
  - Terminal 3 Life Extension and Modernization project ($50 million)
  - North Complex Redevelopment project ($1 billion)
- Federal Aviation Administration (FAA) EnRoute Facility Design-Build Modernization Program, Nationwide: program manager for the Balfour Beatty Construction/Parsons Brinckerhoff /Heery International design-build team responsible for providing design, project control systems, program/project management, and quality and safety programming at 27 facilities across the U.S., Puerto Rico and Guam. The En-Route facilities, commonly known as Air Route Traffic Control Centers (ARTCC), an integral part of the nation's air traffic control system, were constructed in the 1960s and are in need of modernization to support the FAA's mission moving forward. Projects

involve upgrading of heating and cooling systems that have reached their sustainable life, technical support spaces that are inadequate to house computers and telephonic equipment, and systems integration equipment.

- Dulles International Airport D_2 Program, Washington, DC: joint venture board member on the $6 billion expansion and improvements to Dulles International Airport. Mr. Rosenberg is responsible for oversight of the technical and business management activities for the joint venture team providing services to the Metropolitan Washington Airports Authority (MWAA).
- Port Columbus International Airport, Columbus, Ohio: principal-in-charge for construction management services for Runway 10R/28L, a $140 million replacement runway.
- San Francisco International Airport: principal-in-charge for construction management services to the City of San Francisco for runway safety area improvements on the ends of its four runways, a $250 million safety enhancement program.
- Long Beach International Airport Parking Structure, Long Beach, California: principal-in-charge for the owner's representative/construction management services for the $200 million new terminal parking structure.
- Burbank-Glendale-Pasadena (Bob Hope Airport), Burbank, California: project manager for construction support services associated with the taxiway rehabilitation and safety improvements program.
- New Austin Airport at Bergstrom Air Force Base, Austin, Texas: program manager, program management support consultant/deputy project director, New Airport Program Team, responsible for all aspects of design, construction and project controls and administration. Mr. Rosenberg directed and managed a multidisciplinary team providing program design and construction management for the multimillion-dollar conversion of an existing Air Force base into a new municipal airport. Parsons Brinckerhoff provided program management support services to the City of Austin, Department of Aviation. The expanded facility, which opened in May 1999, was designed to accommodate aviation requirements well into the 21st century and is expected to become an economic generator for the entire Austin metropolitan area. The $650 million airport program consists of over 20 design and construction projects whose major elements include:
  - 550,000-square-foot (51,097-square-meter), 25-gate terminal facility
  - New 9,000-foot-long (2,743-meter-long) CAT 3 runway
  - Rehabilitation of an existing 12,250-foot-long (3,734-meter-long) runway
  - Midfield cross-taxiway system
  - 3,300-space parking garage
  - On-grade parking for 7,000 vehicles
  - 100,000-square-foot (9,290-square-meter) air cargo facility
  - New fuel farm
  - 5 miles (8 kilometers) of internal access roadway
- MWAA Ronald Reagan Washington National Airport and Dulles International Airport Program, Washington, DC: manager of design and engineering for the $2 billion expansion and improvements to Ronald Reagan Washington National and Dulles International Airports responsible for all aspects of design and engineering. Mr. Rosenberg directed and managed a multidisciplinary professional staff providing oversight, design and program management support encompassing archeological/ historic resource, environmental engineering, utility coordination, building code enforcement, value engineering, regulatory permitting, operations and maintenance, and all architectural and engineering disciplines for the MWAA's ambitious, 150-project capital development program.
- Tucson Airport Authority, Tucson, Arizona: principal consultant reviewing the organization, structure and processes used to manage and oversee the capital improvement program.
- Harrisburg International Airport (HIA), Harrisburg, Pennsylvania: principal-in-charge for the professional A/E services contract for the Susquehanna Area Regional Airport Authority (SARAA).

The contract includes the management of the design and construction of an approximate 50-acre (20-hectare) apron in support of a new eight-gate terminal (with an expansion capability of up to 28 gates). The contract also includes structural engineering design and construction drawings for a new eight-gate 285,000-net-square-foot (26,477-square-meter) terminal building that includes the design of 50,000 square feet (4,645 square meters) of basement area for baggage and explosive detection system (EDS) baggage screening equipment.

- West Virginia Public Port Authority (WVPA), New West Virginia Regional Airport: as principal-in-charge, Mr. Rosenberg provided management oversight for a transition/reuse plan and economic impact analysis for the existing commercial airports and an economic impact analysis for the proposed new regional airport. He is responsible for attending and presenting reports to the WVPA and for answering all questions from the press at these meetings.
- New International Terminal at John F. Kennedy International Airport (JFK), Queens, New York: as director of aviation planning and design for this $200 million terminal, Mr. Rosenberg was responsible for program management oversight of all planning and design areas relating to terminal and apron operations. The Terminal One program at JFK, sponsored by a consortium of four international carriers (Japan Air Lines, Lufthansa, Air France, and Korea Air), was constructed on the site of the Eastern Terminal and has 11 gates and two hardstands. It was designed to service over 2 million international passengers a year. The facility, which opened in May 1998, includes a new two-level approach and departure roadway, a two-level terminal with a full Federal Inspection Service (FIS) facility and all associated apron and operational facilities.

Awards

- American Society of Civil Engineers, Construction Management Institute 2004 Construction Management Award.
- Subcontractors Association of America (Tri-State–Ohio/Indiana/Kentucky) 2003 Program Manager of the Year.
- 1984 Young Engineer of the Year, Virginia Society of Professional Engineers.

Teaching Experience

- ACI: presenter, Legal Affairs Committee Spring Meeting, “The Good, Bad, and the Ugly of the Professional Procurement Process,” 2012.
- AAAE: lecturer at Airfield Construction Management Workshop, “A Risk Management Approach to Construction and Program Management,” 2011 and 2012.
- ACI lecturer, Economics and Human Resource Committees Annual Meeting: “Negotiating Is NOT for Dummies,” 2011
- George Mason University, Fairfax, Virginia: lecturer on "Ethical Practices in Modern Day Consulting Engineering" and "Crisis Facing the Engineering Profession in the 1990's.”
- American Association of Airport Executives (AAAE): lecturer, “Program Management for Aviation Projects,” “Program Planning and Design Management,” “Basics of Project/Construction Management,” “Partnering,” and “Value Engineering,” August 1999, December 1998 and March 1997.
- AAAE: developer and lead lecturer for Airfield Construction Management Workshop, “Construction Management - A Total Quality Process,” 1999, 2000, 2001, 2002, 2003, and 2004.

Publications and Presentations

- Passenger Terminal World: “Risky Business – Managing Risk Effectively is Key to Successfully Undertaking Construction and Programme Management,” December 2012
- Passenger Terminal World: “Life Extension – Making Sure Your New Airport Terminal Will Stand the Test of Time,” January 2012

- "Cost-Effective Strategies for Increasing Involvement by Disadvantaged Business Enterprises (DBE) and Small Business Enterprises (SBE) in Construction," Airport Council International Economics Workshop, 2000.
- "Show Us the Money: The Creative Financing Approach to the Funding of the New Austin-Bergstrom International Airport," American Society of Civil Engineers 25th International Air Transportation Conference, June 1998.
- "How the City of Austin, Texas, Is Eating an Elephant," American Society of Civil Engineers National Meeting, Architectural Engineering Symposium, January 1997.
- "Austin-Bergstrom International Airport (ABIA) Program Management - A Total Quality Process," Austin Quality Council, Quality Workshop, Austin, Texas, 1995.
- Mr. Rosenberg has regularly authored papers and articles related to the planning, design, construction, and financing of aviation projects for publications such as *Civil Engineering Magazine*, Urban Land Institute, and American City and Town.

Douglas Sachman

Associate Vice President

Education

Bachelor of Science, Aeronautics (Magna Cum Laude)
Dowling College

Associate of Science, Aerospace Technology
State University of New York, Farmingdale

Publications

"Selecting the Right Aircraft for the Mission," National Business Aircraft Association Management Aid. November-December 1987.

"Jackson Hole-–Domestic U.S. Airport Assays a Balancing Act," Airport Technology International, 1994.

Presentations

"Guam International Airport Alternate Runway in Support of Andersen AFB", FAA Pacific Aviation Directors Workshop, 2009.

Project Experience

With 35 years of experience, Doug Sachman is a specialist in airport facilities planning and capacity analysis. He has supervised and/or participated in comprehensive master plans for over 50 domestic and international airports ranging in size from general aviation to air carrier hubs. He has gained vast working knowledge of air traffic control and airspace through numerous airport capacity analyses conducted worldwide. He participates in airfield design and construction projects in roles that utilize his knowledge of airport planning and design standards, such as airfield geometrics, airport and aircraft operations and FAA organization and protocols. Doug has filled key roles in master plans and airport development programs for major airports in the US and overseas.

Relevant Project Experience

Commercial Airport Master Plans, Various Worldwide Locations. Involved in over 50 master plans on supervisory and participatory levels for airports worldwide, including San Diego International Airport, California; Mactan International Airport, Philippines; Zuid-Limburg Airport, Netherlands; Seattle-Tacoma International Airport, Washington; Portland International Airport, Oregon; Melbourne International Airport, Australia; and Jackson Hole Airport, Wyoming. Project manager for master plans for Austin-Bergstrom International Airport, Texas, Saipan International Airport, Commonwealth of Northern Mariana Islands (CNMI) and Pago Pago International Airport, American Samoa.

Aviation System Plans, Various Worldwide Locations. Senior aviation planner for the West Virginia air systems plan; the regional airport system plan update for the Maricopa Association of Governments, Arizona; Puget Sound, Flight Plan Project—Phase III for Seattle-Tacoma International Airport, Washington; and Ukrainian Air Transport System to serve as long-range planning guidelines for airport development on a system-wide basis.

San Diego International Airport, Programmatic Document, San Diego, California. Project manager for a comprehensive programmatic document for a $500 million improvement program that included a 400,000 SF/10 gate terminal expansion, together with associated access, auto parking, airfield, infrastructure and terminal systems. Responsible for the management of a multi-discipline A/E team. The programmatic document presented the Airport Authority's vision of the project and provided criteria and standards to be used by the design team. LEED certification was a key project goal.

Los Angeles International Airport, LAX Development Program, Los Angeles, California. Since April 2008 served as Lead Planner responsible for Project Definition of a $5 billion airport development program involving the expansion of the Tom Bradley International Terminal (TBIT), reconfiguration of taxiways and central utility plant. The program will provide modern terminal facilities capable of accommodating the Airbus A380 which is now operated by several airlines at LAX. Supported the Airside Element of the Airports Development Group on major taxiway and airport development projects. Responsible for the preparation of Project Definition Documents for new crossfield taxiways in support of the program. Prepared an airport land use plan providing the location of all airport support facilities and temporary areas for construction staging and laydown. Prepared an aircraft maintenance area plan (West Maintenance Area) capable of accommodating A380 hangars and coordinated with environmental consultant on the preparation of documents. Coordinated FAA Form 7460 issues with FAA for new construction and construction cranes. Reviewed airfield designs with respect to impact on aircraft operations during construction, assessed RON and aircraft parking impacts of the development program, assessed airspace issues, and prepared white papers.

Los Angeles International Airport, Los Angeles, California. Managed the final production including technical editing of various technical reports that documented advanced planning of master plan improvements. These included the following facilities: Thomas Bradley International Terminal (TBIT), Consolidated Rental Car facility, Intermodal Transportation Center, Ground Transportation Center, Automated People Mover, and Automobile Parking Master Plan.

John Wayne Airport, Settlement Amendment Implementation Plan (SAIP), Orange County, California. Project manager responsible for planning of airside improvements and a construction assessment of a $500 million terminal expansion program. The SAIP program includes a 300,000-square-foot, six-gate terminal expansion; demolition of a parking structure; and construction of a new parking structure. Work involved preparation of a comprehensive assessment of construction issues, including a detailed evaluation of construction activities, and phasing and packaging recommendations. Performed an airfield (runway) capacity analysis intended to identify the maximum number of passengers the runway is capable of supporting.

Queenstown Airport, Queenstown, New Zealand. Provided evidence in chief and expert testimony to the New Zealand Environment Court with respect to an airport plan to acquire 19 hectares of private property. The evidence was based on a comprehensive assessment of the plan and concluded that sufficient land was available such that costly acquisition could be avoided, while promoting more efficient airport operations and layout with respect to passenger terminal and non-scheduled (GA) facilities.

South Sudan Airfield Assessments, South Sudan. Project manager for an assessment of seven airports/airfields in South Sudan in order for the U.S. government to assist the Government of South Sudan to improve aircraft travel. The assessments were performed under contract with the U.S. Department of State and coordinated with the U.S. Air Force. Managed an in-country survey team that performed assessments for the following airports/airfields: Juba, Malakal, Rumbek, Aweil, Bor, Raja and Rabkona. Comprehensive assessments were performed for Juba and Malakal. General assessments were performed for the other airfields to identify requirements to safely accommodate operations of medical evacuation aircraft and basic aircraft access to the airfields.

Austin-Bergstrom International Airport, Master Plan Update, Austin, Texas. Project manager for a comprehensive master plan update to accommodate demand through the year 2020 for this air carrier facility formerly Bergstrom AFB. Primary aspects of the plan included a new unit terminal and provisions for a major expansion capability for air cargo. The process included conducting a peer review. As part of a previous master planning effort for the city of Austin, conducted a feasibility analysis on the potential reuse of Bergstrom AFB as the new air carrier for the city.

Portland International Airport, Master Plan Update, Portland, Oregon. Project manager responsible for the preparation of airport plans and completion of the master plan update. Project manager for a study of the feasibility of extending Runway 10L-28R. This involved an assessment of airport design standards, TERPS, and runway/aircraft capability under FAR Part 121.

MCAS El Toro Airport Systems, Master Plan, Orange County, California. Senior airport planner responsible for identification of airfield facility requirements. Coordinated an assessment of potential airspace issues for noise modeling input. Coordinated aircraft performance analysis of departure procedures, comprehensive TERPS analysis, and prepared responses to comments on the draft EIR for these topics. The development plan includes two sets of dual parallel runways, 2-3 million square feet of new passenger terminal building with 62 jet gates, two million square feet of cargo buildings with a cargo apron for 42 aircraft, four aircraft maintenance facilities, and support facilities.

New Austin Municipal Airport, Master Plan, Manor, Texas. On-site resident planner for the preparation of a master plan for a new commercial airport (Manor site) to serve the City of Austin. Coordinated work of the terminal building consultant and its integration into the master plan.

Pago Pago International Airport Master Plan, American Samoa. Project manager responsible for the preparation of a 20-year master plan for the main airport serving American Samoa. This was a FAA funded master plan, a focus of which was incorporating modernizing of the passenger terminal into the 20-year development program. Recommendations also included a comprehensive program of airfield pavement rehabilitations and expansion. Project manager for the preparation of master plans for Fitiuta and Ofu Airports.

Saipan International Airport, Master Plan Update, CNMI. Project manager for a comprehensive master plan update to accommodate demand through the year 2020. The principal recommendations focused on the development of a passenger terminal concept that minimized impacts on existing operations. This involved construction of new facilities adjacent to the existing building and subsequent demolition and reconstruction of the existing terminal.

Guam General Aviation Study, Guam. Project manager for a comprehensive study of strategies for accommodating general aviation on Guam through the year 2027. The study included forecast of general aviation demand under various scenarios, determination of airport requirements and evaluation of strategies. Strategies included serving demand at the existing international airport with and without facility improvements, or development of a new general aviation airport. The latter strategy included site selection study and preparation of airport layout plans for a new general aviation airport.

Guam International Airport, Guam. Project manager responsible for the preparation of a cargo apron facility and runway feasibility studies.

Rochester Monroe County Airport, Forecast Report, Rochester, New York. Project manager responsible for the development of forecasts and facility programming for the preliminary design of passenger terminal improvements. Programming included a passenger survey to identify passenger travel characteristics including terminal occupancy, spending, and travel patterns.

Passenger Surveys, Various Airports. Project manager for surveying passengers as part of planning and design projects at Rochester-Monroe County Airport, NY; San Diego-Lindbergh Field, California; Mactan International Airport, Philippines; and nine West Virginia airports.

Mactan International Airport, Philippines. On-site resident deputy project director of Mactan International Airport development plan in the city of Cebu. This was the first comprehensive airport master planning effort undertaken in the Philippines. An airport operations manual was also prepared as part of this effort.

Davao International Airport, Modernization Project, Davao, Philippines. On-site resident expatriate air traffic control expert for the Davao International Airport development project. Developed concept plans for navigational aids, ATC communications equipment systems, and air traffic control tower requirements as part of the design of a $105 million modernization project.

Melbourne International Airport, Development Plan Review, Melbourne, Australia. Capacity analyst for review of the Melbourne International Airport development plan. An alternative to the originally recommended airfield layout was developed and the long-term benefits quantified through capacity and delay analyses. Recommendations were endorsed by the Australian Federal Airports Corporation (FAC) and Civil Aviation Authority and adopted for implementation (1989). Supported FAC in finalizing airfield elements of comprehensive master plan (1996).

Sydney Kingsford Smith International Airport, Development Strategy Review, Sydney, Australia. Principal capacity analyst in a review of the airport development strategy. The study utilized a systems approach in analyzing regional capacity and delay implications of the recommended plan and alternative airport development strategies in the region (1991). Provided expert testimony with respect to the proposed long-term operating plan for the airport (1998).

Borispol Airport, Airfield Improvements, Kiev, Ukraine. As a senior planner was responsible for the identification and siting of all required airfield improvements at Kiev Borispol Airport. Defined exit taxiway system through the use of the runway exit design interactive model (REDIM), which determined the optional location of exits to minimize reduced runway occupancy times. Conducted similar analyses for major airports at Symferopol, Odessa, and Lvov.

Seattle-Tacoma International Airport, Master Plan, Seattle, Washington. Senior planner for a master plan update focusing on a third runway (1995). Conducted airfield capacity study (1996). Project manager of a study of proposed airfield improvements that quantified long-term benefits in the form of reduced runway occupancy times (ROT) and aircraft delay (1989). Authored draft final report for an FAA Capacity Enhancement Task Force that summarized the group's undertakings and findings.

John F. Kennedy International and LaGuardia Airports, ATCT Impact Analysis, New York, New York. Assisted building sponsors in meeting FAA notice requirements for obstruction evaluation under FAR Part 77. Main analyst and technical liaison regarding potential impacts of a 50-story office building approximately three miles from La Guardia Airport.

Coordinated all concerns during FAA's aeronautical study so the project could be built. Performed an analysis of impacts of a proposed control tower at John F. Kennedy International Airport on airport operations and instrument approaches.

Jackson Hole Airport, Master Plan, Jackson Hole, Wyoming. Principal planner responsible for the preparation of a master plan, environmental assessment, and FAR Part 150 study, and various operational analyses for an airport located in Grand Teton National Park. Requirements focused on a runway extension and expansion of the airport's terminal.

General Aviation Airports, Master Plans, Various Locations. Project principal or manager responsible for the preparation of master plans for the following general aviation airports: Lt. Warren Eaton Airport, Schenectady County Airport, Canastota Municipal Airport, Columbia County Airport (New York); Borrego Valley Airport, Fallbrook Community Airpark, Gen. William J. Fox Airfield, Brown Field, Brackett Field, Calexico International Airport, Gillespie Field, Merced Municipal Airport, Salinas Municipal Airport, Delano Municipal Airport, Lompoc Municipal Airport, Whiteman Airport, Hayward Executive Airport and California City Municipal Airport (California).

San Diego International Airport, Obstruction Analysis, San Diego, California. Performed obstruction analysis for Runway 27 at SDIA. The analysis addressed required obstacle clearances called for under FAR Part 77, TERPS, and as they related to the siting of PAPI systems and runway thresholds.

Syracuse Hancock International Airport, Airspace Study, Syracuse, New York. Project manager of an airport/airspace simulation study. Using SIMMOD, the existing intersecting runways configuration was modeled to identify baseline levels of delay. Other cases for comparison included the existing runway layout with future demand levels and an improved airfield configuration containing a parallel air carrier runway.

Second Bangkok International Airport, Simulation Studies, Bangkok, Thailand. Project manager for computer simulation studies for a new airport. Using SIMMOD, the initial airfield layout was tested under various operating configurations to assess the proposed taxiway system. The ultimate airfield layout was also tested to assess consequences of operations at a level of 100 MAP. Proposed high speed exist taxiway locations were evaluated by using REDIM and modifications were proposed to improve ROT (1995).

TwinPorts Transborder Airport, Master Plan, San Diego, California. Project manager for studies evaluating instrument approach procedures and noise impacts of development of a bi-national air carrier airport serving the San Diego/Tijuana region. Senior airport planner for a master plan for the bi-national airport concept designed to serve the long-term needs for San Diego.

Noise and Land Use Planning, Various Locations. Planner for airport noise control and land use compatibility (ANCLUC) studies for Albany County Airport, New York (1978) and Lincoln Municipal Airport, Nebraska (1979). Planner for the Air Installation Compatible Use Zone (AICUZ) studies for the Department of the Navy at NAS South Weymouth, Massachusetts (1978), and NAS Whiting Field, Florida (1978). Prepared comprehensive airport facility and land use manual for the Butte County (California) Airport Land Use Commission (1993).

Environmental Planning/Documentation, Various Locations. Throughout his career Doug has participated in various projects on both supervisory and analytical levels. These include: EIR for a new commercial airport in Orange County, California; EA for Jackson Hole Airport master plan; Oakland International Airport (purpose and need); EIR for a 2,200-foot runway extension at Fox Field, California; and numerous environmental documents under the California Environmental Quality Act (CEQA) for adoption of airport master plans and approval of airport development projects.

Aviation Industry. Involved in a variety of projects that included aircraft fleet plans for major U.S. corporations, numerous surveys on different topics of interest in the aviation industry, aircraft performance analyses, and market studies for airframe and component manufacturers. (1985-88).

James H. Duke, III, P.E.

Education
B.S., Civil Engineering, 1994
The University of Texas at Austin

Professional Registration
Licensed Professional Engineer
2000, Texas, 86484
2011, California, C78736

Professional Experience:
Mr. Duke is experienced in the management of airport related projects including airfield, terminal, utility, and roadway projects including planning, programming, design and construction. His experience ranges from managing multiple projects for multiple clients to being responsible for a major program for a single client at the client's project site. Mr. Duke's past responsibilities have also included identification, interviewing, negotiating and hiring qualified staff, and vehicle procurement and fleet management.

Mr. Duke's engineering design experience includes the design, specification, calculation and evaluation of airfield pavements, drainage systems, utilities, earthwork, lighting, signage and marking for new and repair / addition / alteration projects for private, general aviation and commercial aviation facilities. He is also experienced in the creation, evaluation, optimization and analysis of 3D CADD models and is experienced in construction management support and coordination requirements of aviation projects both on and off the airfield.

Past Employment:
RS&H, Inc., Western Region Airfield Service Group Leader
Los Angeles, CA
June 2010 to Present

AECOM Technical Services, Inc. (f.k.a. DMJM Aviation), Senior Project Manager
Fort Worth, Texas
November 2007 to June 2010

PGAL, Senior Associate
Irving, Texas
November 2004 to November 2007

Carter & Burgess, Inc., Civil Engineer/Project Manager
Fort Worth, Texas
November 1997 to November 2004

Espey, Huston & Associates, Engineer in Training
Austin, Texas
June 1994 to November 1997

Organizations
American Society of Civil Engineers, Member
Transportation and Development Institute, Member
American Association of Airport Executives, Corporate Member

Training
Liability IQ for Design Professionals, XL Insurance, 2007

Project Management Boot Camp, PSMJ Resources, Inc., 2008

Awards/Honors
Eagle Scout, Boy Scouts of America, 1988

Relevant project experience includes:

Reynolds, Smith and Hills, Inc.

- Southwest Airlines Terminal 1 Renovation, Los Angeles international Airport, Los Angeles, California –Airfield Design Leader. Provided project management, airfield planning and coordination, and program schedule development for complete terminal renovation and expansion including complete ramp reconstruction.

- Capital Programming and Planning Group Airside Planning Manager, Los Angeles World Airports, Los Angeles, CA – Planning Manager. As an extension of staff for Los Angeles World Airports, was responsible for managing and coordinating all airside planning programs at three airports including master planning, project definition, and conceptual design including tenant development plan review. Supported environmental documentation processes for both state (CEQA) and federal (EPA) evaluation. Provided leadership and mentoring to City staff within the airside planning group. Representative projects and initiatives include:
    - Van Nuys Airport Runway (VNY) 16R Rehabilitation
    - Los Angeles International Airport (LAX) Passenger Boarding Bridge Replacement Program
    - LAX Runway 7L Safety Area Improvements
    - LAX Runway 6L-24R Safety Area Improvements and Rehabilitation
    - LAX Runway 6R-24L Safety Area Improvements and Reconstruction
    - LAX Runway 25R and Taxiway B Rehabilitation
    - LAX Midfield Satellite Concourse Program
    - LAX Bradley West Program
    - LAX West Aircraft Maintenance Area Development
    - Airport Capital Improvement Program Development for LAX, ONT, and VNY
    - Airfield Pavement Management System for LAX, ONT and VNY
    - Modifications of Standards for LAX, ONT and VNY

- On Call Airside Planning Professional Services, Los Angeles World Airports, Los Angeles, California – Project Manager, Senior Engineer. Provided project management, airport planning, and engineering design services for multiple projects and studies at Los Angeles International Airport (LAX), LA/Ontario International Airport (ONT) and Van Nuys Airport (VNY). Projects associated with this contract include:
    - Miscellaneous Services, Los Angeles World Airports, Los Angeles, California – Project Manager. Coordinated and provided miscellaneous service to support the Capital Programming and Planning Group at LAWA. Tasks included CADD support, airspace analysis, and pavement evaluation.

    - Airside Planning Services & Staff Support, Los Angeles World Airports, Los Angeles, California – Project Manager. Provided on-call, on-site staff extension services to support the Capital Programming and Planning Group at LAWA including acting as Airside Planning Manager.

    - LAWA Due Diligence Review, Los International Airport, Los Angeles, California – Project Director. Provided peer review of planning documents prepared by other consultants and a briefing to LAWA executive management regarding findings.

- LAX Aircraft Parking Analysis, Los Angeles International Airport, Los Angeles, California – Project Director. Provided analysis, recommendations and design for new B747-8 parking positions at Imperial Cargo Complex.

- LAX Passenger Boarding Bridge Conditions Assessment and TBIT PBB Relocation Documents, Los Angeles International Airport, Los Angeles, California – Project Director. Performed condition assessment of passenger boarding bridges at LAX to determine priority for replacement, Developed planning level project definition to reuse existing bridges being salvaged from a concourse to be demolished to replace existing bridges at other terminals in poorest condition.

- ONT Runway 8L-26R Safety Area Improvements Site Analysis, LA/Ontario International Airport, Ontario, California – Project Manager. Provided site analysis and preliminary engineering for runway safety area improvements including service road relocations, perimeter fence relocation, and culvertization of the West Cucamonga Channel. Coordinated localizer relocations with FAA.

- Categorical Exclusion for Runway 8L-26R Safety Area Improvements at LA/Ontario International Airport, LA/Ontario International Airport, Ontario, California – Project Director. Developed a CatEx to facilitate the construction of the proposed runway safety area improvements in accordance with NEPA.

- LAX Alleyway Rehabilitation Study, Los Angeles International Airport, Los Angeles, California – Project Manager. Developed preliminary conceptual phasing plans to evaluate potential alternative construction phasing to reconstruct taxilanes providing access to terminal ramps while minimizing the impacts to airline operations.

- LAX West Side Concept Plan, Los Angeles International Airport, Los Angeles, California – Project Director. Provided a land use study and conceptual development plan for the area of LAX west of Taxiway R, East of Pershing Drive, North of Taxiway B and south of Taxiway D. Study included an analysis of existing RON positions and usage.

- LAX Aircraft Performance Analysis, Los Angeles International Airport, Los Angeles, California – Project Manager. Evaluated the theoretical operational impact of a westward runway shift to reduce early aircraft turns over the City of El Segundo.

- LAX Runway 7R-25L Pavement Distress Evaluation, Los Angeles International Airport, Los Angeles, California – Project Manager. Provided forensic pavement evaluation to determine likely causes of premature distress in concrete runway pavement. Evaluation included coring, macrotexture testing , compressive and tensile concrete strength testing, petrographic analysis, detailed evaluation of construction records and interviews with construction inspection staff.

- El Segundo Concerns Study, Los Angeles International Airport, Los Angeles, California – Project Director. Developed study protocol to determine specific causes of concern with respect to aircraft noise in the City of El Segundo and evaluate alternatives to mitigate those concerns.

- Terminal Needs Assessment, Merced Regional Airport, Merced, California—Project Director. Provided oversight to ensure the effort sufficiently addressed the initial planning and early concept design to facilitate approval, funding, and subsequent design and construction efforts of a new passenger terminal building.

- Airfield Culvert Project along Sulphur Creek, Hayward Executive Airport, Hayward, California – Senior Engineer. Provided project management, engineering design, and engineering design oversight for the installation of a culvert on approximately 420 linear feet of existing channel and approximately 2,600 foot by 50 foot relocation of asphalt Taxiway Z including new LED taxiway edge lighting along the entire 5,800 foot long taxiway.

- Perimeter Fence Improvements and Capital Improvement Program (CIP) Assistance, Palm Springs International Airport, Palm Springs, California—Project Manager. Provided project management, engineering design, and engineering design oversight for the installation and replacement of approximately 11,000 linear feet of chain link security fencing, access gates, and concrete masonry unit block wall. Project also included the installation of additional CCTV cameras and perimeter intrusion detection system.

- Taxiway C East End Relocation Project – Phase 2, Hollywood International Airport, Fort Lauderdale, Florida- Senior Engineer. Provided engineering design oversight for the relocation of Taxiway C due to revised FAA geometric design criteria including geometry, paving, grading, drainage, and pavement markings.

- New Passenger Terminal Sitework, Apron Civil Site, Duluth International Airport, Duluth, Minnesota—Quality Control Reviewer. Provided engineering design review of civil airside sitework associated with a new passenger terminal.

- Runway 18-36 Extension(s), Runway 18-36 Rehabilitation, and Runway 9-27 Reconstruction, Tallahassee Regional Airport, Tallahassee, Florida—Quality Control Reviewer. Provided engineering design review of multiple construction packages.

- Apron A and B Rehabilitation, Bob Hope Airport, Burbank, California--Constructability Reviewer. Provided periodic design reviews focused on the constructability of the work including access, phasing, demolition, power distribution, asphalt paving, and concrete paving.

- Runway 18L-36R Rehabilitation, North Perry Airport, Pembroke Pines, Broward County, Florida—Quality Control Reviewer. Provided engineering design review of asphalt pavement reconstruction and overlay.

- Runway 9L-27R Rehabilitation, North Perry Airport, Pembroke Pines, Broward County, Florida—Quality Control Reviewer. Provided engineering design review of asphalt pavement reconstruction and overlay.

- Apron Reconstruction – East of Spots 3/4 Salt lake City International Airport, Salt Lake City, Utah – Quality Control Reviewer. Provided engineering design review of concrete pavement reconstruction with emphasis on phasing and constructability.

AECOM Technical Services, Inc. (formerly known as DMJM Aviation)

- Runway Extension Project, Early Earthwork Package 3, Fort Worth Alliance Airport, Fort Worth, TX--Senior Project Manager. Provided project management, engineering design, and engineering design oversight for mass grading associated with the approach light lane to support a future extension of runways and parallel taxiway. Responsibilities included project management for quality, budget, and schedule and design and design oversight of grading, drainage, and franchise utilities coordination. Prepared bid documents, contract documents, special requirements, general provisions, and technical specifications. Prepared construction cost estimates.

- Design and Design Management Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Responsible for all operations associated with architecture, engineering, planning and management projects at the airport for multiple years including scoping, fee proposal, negotiation with consultants, negotiation with client, contract development and execution, and management of projects both technically and financially. Through six months, professional fees were approximately $6,600,000 with an estimated constructed value of $21,542,000 including up to 14 subconsultant firms. Projects associated with this contract include:

    - DPS Fire Station No. 6 Design and Construction Support Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed design and construction support services for a new single story, three bay fire station to meet or exceed LEED-NC Silver Certification.

    - DPS Fire Training Facility Rehabilitation/Improvements, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed design, construction support and construction inspection services for converting existing LPG fire pit to hydrocarbon (TekFlame), new LPG fire pit with new aircraft mockup, new chemical storage facility, new two-story field health and comfort station and fire trainer control facility, new one story training rooms and offices, inspection of existing structural fire trainer, and converting existing classroom building to galley and refurbish locker and toilet areas.

    - Fire Systems Components Assessment Non-Terminal Facilities, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed assessment of fire protection systems in 14 non-terminal facilities and recommend corrective actions in accordance with current codes and industry standards.

    - Reclaimed Water Delivery System, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed design and construction support services for Phase 1 of a Type 1 wastewater reuse system including intake pipe, pump station, and distribution piping. This project also included Section 404 permitting support.

    - DPS Fire Station No. 6 Pre-Design & Programming Validation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed the review of the current program, confirm building functions, and apply the proper space requirements during the concept and preliminary phases, as well as developing a strategy for project delivery.

    - Infrastructure Modifications for Additional Terminal Vending Machines Terminals A, B, C, D, & E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed design of power and water service to allow the installation of additional snack and soft drink machines on the concourse level of five terminals. Thirty-seven locations required power and twelve locations required water. Work included power relocation for existing signage and SmartCarte display, minor wall demolition, and relocation of a floor-mounted FIDS bank.

    - Engineering Study and Structural Assessment North Toll Plaza Utility Tunnel, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed a detailed study based on visual observation that evaluated, assessed, photographed and reported on the existing condition of the structural plate pipe tunnel. Identified problem areas and recommended solutions.

- Tenant Design Manual Updates, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed architectural services associated with revising the terminal tenant development manual to explore and revise the current tenant design manual. Clarify signage requirements, update checklists for fire protection, update roof penetration information, add requirements for chilled water loop, update energy efficiency information, update green and sustainable information, and update storage requirements.

- PCA Equipment Replacement Terminal E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services for restoration and replacement of elements associated with preconditioned air units at Terminal E.

- DPS Fire Station No. 6 Schematic Design, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. . Managed development of architectural plans, building mass studies, site plans, preliminary wall sections, exterior elevations, and outline technical specifications. Also recommended structural system, other building systems, and palette of proposed building materials.

- Rehabilitate Airfield Lighting and Pavement Systems Runway 13L-31R Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services for seven new constant current regulators (CCR) and insulation resistance monitoring system (IRMS).

- Replace Triturator at Terminal A Pad Mary Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services during design and construction for an automated de-germ system, force main, chopper pumps, and lift station for the disposal of aircraft lavatory waste.

- Reconfigure Southwest Deicing Hold Pad Site Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services for the installation of a lift station and reconfiguration of existing piping systems to increase storage capacity for spent deicing fluids. Commissioned systems included 4-3,500 GPM pumps, all reworked piping, 2-36” diameter valves, 1-open channel flow meter, 5-electric sluice gates, level switches and associated meters, circuit breakers, transformers, conduit, wiring, switches and motor controls.

- Northeast Quadrant Perimeter Taxiway Systems Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services during design phase for the airfield lighting and signage systems associated with perimeter, or end-around taxiways, in the northeast quadrant of the airfield.

- United Airlines Relocation to Terminal E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed architectural, mechanical, electrical and plumbing engineering, and IT systems design and construction support services associated with the relocation of United Airlines operations at Terminal B to Terminal E including ticket counters, ATO, BSO, station manager’s office, gate counters (3), BSO, training room, IT rooms (2), ramp operations office, storage room, maintenance room, curbside check-in, and Metrologic system.

- Replace Triturator at Terminal E North Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services during design and construction for an automated de-germ system, chopper pumps, and pump controls for the disposal of aircraft lavatory waste.

- Sustainable Design Guidance Manual, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed professional services to create a sustainable design guidance manual based upon LEED credits to be utilized by the airport as an amendment to the codes.

- Commissioning of 180kVA Gate Boxes at Terminal D, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Managed commissioning services for upgraded aircraft 400 hz power service from 140 kVA per gate to 180 kVA per gate.

- Project Manager Transition, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Provided professional services to aid in the transition of a new project manager into the on-site role.

- Reconstruction of Runway 9L-27R and Associated Taxiways, Detroit Metropolitan Wayne County Airport, Romulus, MI--Project Manager. Provided design and management for 263,000 SY Portland cement concrete and 216,000 SY bituminous asphalt pavement reconstruction of Runway 9L-27R, a portion of Runway 3L-21R, and associated taxiways. Responsibilities included review of airfield design including pavement, jointing, marking, phasing, grading, drainage and airfield lighting and coordination of design modifications required by client to support second year of construction. Award of Excellence, Asphalt Pavement Association of Michigan, 2009.

- Taxiway RC Extension, San Antonio International Airport, San Antonio, TX--Project Manager. Provided design and management for 1,000 foot long by 50 foot wide asphalt taxiway extension and relocation of existing service road. Responsibilities included airfield design including demolition, pavement, jointing, marking, phasing and coordinating grading and drainage design. Prepared bid documents, contract documents, special requirements, general provisions, and technical specifications. Prepared construction cost estimates.

- Taxiway A Reconstruction, San Bernardino International Airport, San Bernardino, California--Project Manager. Provided design and management for 2,500 by 75 foot reconstruction of Taxiway A approximately 100 feet north of its existing location. Responsibilities included airfield design including demolition, pavement, jointing, marking, phasing and coordinating grading and drainage design. Prepared bid documents, contract documents, special requirements, general provisions, and technical specifications. Prepared construction cost estimates.

- Juan Soria Elementary School, Oxnard, CA--Project Manager. Provided airspace analysis, FAA Form 7460-1 preparation and FAA coordination for construction of a new elementary school approximately 1,300 feet south of the Oxnard Airport runway.

- Reconstruction of Taxiway K and Adjacent Apron, Detroit Metropolitan Wayne County Airport, Romulus, MI--Project Manager. Provided design and management for 118,000 square yard reconstruction of Taxiway K and adjacent apron to support the North Terminal Renovation. Responsibilities included airfield design including pavement, jointing, marking, and phasing. Prepared and reviewed construction cost estimates and developed anticipated construction schedule to develop milestones. Coordinated the

work of multiple consultants. Award of Excellence for Special Achievement in Concrete Paving, Michigan concrete Paving Association.

PGAL

- Architecture, Engineering, Planning and Management, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Responsible for all operations associated with architecture, engineering, planning and management projects at the airport for multiple years including scoping, fee proposal, negotiation with consultants, negotiation with client, contract development and execution, and management of projects both technically and financially. Through three years professional fees were approximately $33,000,000 with an estimated constructed value of $129,000,000 including up to 100 subconsultant firms. Projects associated with this contract include:

    - Terminal D Commissioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Commissioning of all systems in the new Terminal D.

    - Thermal Rehabilitation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design, construction support and construction management services associated with the installation of new triple parallel pumps in the heating hot water distribution system and additional chilled water piping to alleviate heating and cooling deficiencies in the new SkyLink stations.

    - Taxiway K Reconstruction, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design, construction support and construction management of associated with the reconstruction of the primary terminal access taxiway on the east side of the airport using an innovative pavement section including a permeable asphalt base course. Project was completed ahead of schedule and under budget. Silver Excellence in Concrete Pavement Award, Commercial Service & Military Airports, American Concrete Pavement Association

    - Beacon Site Utilities, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support associated with the installation of water, sanitary sewer, and electrical services for a private development on the beacon site.

    - Ground Transportation Administration Building, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the expansion of the existing taxi queue building to accommodate the ground transportation operations offices.

    - Central Utilities Plant Upgrades Support, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General design and construction support services related to upgrades to the existing central utility plant and associated systems including remote monitoring of systems.

    - Terminal E Common Use Terminal Equipment (CUTE) and Electronic Visual Information Displays (EVIDS) Infrastructure, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design, construction support, and construction management services associated with the installation of power cabling, data cabling, and steel frames to support the future installation of new CUTE equipment and EVIDS monitors throughout Terminal E.

- Culvert J1A Relining Construction Management, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Construction management associated with the concrete relining of one mile of 22-foot diameter structural steel plate culvert beneath Runway 13L-31R.

- Design Services for Secure Revolving Doors, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of 24 revolving doors, including security technologies, to prevent unauthorized access of people and contraband into the secure side of the terminal concourse in Terminals A, B, C, and E.

- Grand Hyatt Entry Improvements, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the improvement of the entry into Terminal D nearest the Grand Hyatt to improve the branding and visibility of the hotel to the traveling public including new finishes, revolving door, water feature, and sculpture.

- Terminal A Inline Explosive Detection Baggage Handling System, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of an inline baggage explosive detection system to comply with the requirements of the Aviation Transportation Security Act. The system includes 7 explosive detection system (EDS) screening machines and 11 explosive trace detection (ETD) tables. Areas on the ramp level will be developed to allow for space of the screening matrix along with Transportation Security Administration (TSA) break room, corridors and workspace. The development of the area will require the relocation of some American Airlines (AA) operations. New space will be provided as needed for these displaced operations. Screening capabilities will also be provided for all oversize bags and curbside checked bags. The oversize bag screening will consist of stand-alone ETD areas, one for each of three terminal zones. Due to the age and condition of the controls system for the existing baggage conveyor at Terminal A, the current control system will be upgraded to handle the additional functions of the screening system. A new transfer line will be installed from Zone 3 to the central sort facility.

- Terminal D Post-occupancy Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with an evaluation of the public address and voice evacuation system to ensure compliance with the fire protection strategy developed for the terminal.

- International Commerce Park Phase III, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the grading, pavement, landscaping and drainage, water, sanitary sewer, electric, and gas utilities in the International Commerce Park development to support the private development of lots.

- Graphic Design Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Provision of a graphic designer to support the airport public relations department in publicizing projects associated with the Capital Development Program.

- Terminal D Transportation Security Administration (TSA) Offices, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services related to the interior finish out of shell space in Terminal D for the TSA.

- Rail Corridor Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to the development of a rail corridor through the airport for light rail service from Dallas and commuter rail service from Fort Worth.

- Space Planning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to airport staff office and cubicle assignments in multiple airport buildings.

- Shared Ride Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with a review of shared-ride services available at DFW and at other airports including recommendations for changes to the operating requirements for shared ride operators at the airport.

- Curbside Column Wraps Concept Design, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop a concept design for new signage around the existing canopy columns at the curbside of Terminals A, B, C, and E.

- Capital Development Program (CDP) Implementation Support, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General services related to the implementation of the capital development program including a review of existing operations and recommendations of transition plans to ensure that operations are satisfactorily maintained after the opening of Terminal D and SkyLink and the completion of the Central Utility Plant upgrades.

- Secure Door Program in Terminals A, B, C and E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to identify, review and recommend existing technologies available to secure revolving exit doors between the secure and non-secure sides of the terminal against unauthorized movement of people and contraband.

- Curbside Column Wraps Phase II, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop construction documents for new signage around the existing canopy columns at the curbside of Terminals A, B, C, and E.

- Boiler 10 Stack Testing, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Emissions testing of exhaust gasses from the exhaust stack of Boiler 10 at the Central Utility Plant to ensure compliance with current environmental requirements.

- 4W Parking Lot Conversion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with reviewing the potential for converting the existing 4W parking lot to allow security screening and access to SkyLink for direct terminal access.

- Terminal E Space Planning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to increasing the potential marketability of Terminal E to potential air carrier service.

- Security Screening Checkpoint Staffing Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services, including modeling, to identify TSA checkpoint staffing requirements based upon anticipated traffic.

- Canopies for Remote Parking Bus Stops, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of islands and tensioned fabric canopies at the North and South Remote Parking facilities to allow for two one-way lanes of bus traffic and covered passenger access to buses.

- Standards for Electronic Displays, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to develop standards for electronic displays throughout the airport including content, colors, and layout.

- Airtran Space Reuse Planning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to identify and recommend potential uses for the Airtran train right of way abandoned after the opening of SkyLink.

- Terminal F Intermodal Integration Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to identify the potential for incorporating an intermodal facility at the future Terminal F (4W) site.

- Terminal E Satellite Terminal Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to increasing the potential marketability of the Terminal E Satellite to potential air carrier service.

- Terminal B Regating Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to movement of air carriers in Terminal B to identify and recommend gate assignments and associated modifications to baggage handling and other systems.

- Terminal B Sterile Corridor, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with the development of two concepts for modifying Gates B1 through B5 to allow international arrivals by providing access to the sterile corridor in Terminal D.

- Airfield Operations Area (AOA) Vehicle Charging Facilities, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of electric vehicle chargers at Terminal B, Terminal C, and Evergreen Air Freight.

- Ground Transportation Administration Building Concept Design, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop a concept design, with owner input, for the Ground Transportation Administration offices.

- Terminal Crosswalk Canopies Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop a concept for canopies to cover the crosswalks between the parking garages and the terminal entrances at Terminals A, B, C, and E.

- Intermodal Facility at Terminal F, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to further review and develop a concept for and intermodal (bus, light rail, commuter rail, personal vehicle) facility at the future Terminal F site.

- Management Communication Process Matrix Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to develop an interactive matrix to facilitate communication between management of multiple airport departments and the FAA.

- SkyLink Gala Event Temporary Partition and Electrical Service, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with a temporary wall and temporary electrical service to support the SkyLink grand opening gala event.

- Delta Cargo Planning Study Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to identify and recommend potential uses and marketability of the abandoned Delta Cargo facility.

- Security Screening Checkpoints As-builts and Modeling, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to document the existing layout of security screening checkpoints in Terminals A, B, C, and E and determine potential modifications to increase efficiency.

- Terminal C Baggage Claim Revolving Door Mockup, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of a secure revolving door, corridor, and security technologies to prevent unauthorized movement of people and contraband from the non-secure side to the secure side of the terminal building.

- Ground Transportation Podium, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to modify finishes on an existing interior podium design to withstand exterior conditions.

- Security Screening Checkpoint C21 Expansion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the addition of one lane to the existing C21 checkpoint including the removal of an existing stair.

- Alaska Airlines Terminal E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with ticket counter and gate counter modifications required for new startup service by Alaska Airlines in Terminal E.

- Toll Plaza Finishes Concept, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with modifying finishes of the existing entry and exit plazas to update the aesthetic of the facility including the existing canopy panels, soffit, and booths including glass.

- Leasing Support Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to the Commercial Development Department to provide information and prepare presentations to highlight potential leasing opportunities at the airport.

- Purchase Modems-Support Equipment, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to purchase and provide to the airport modems and associated support equipment for the monitoring of remote sites by the Central Utility Plant.

- Support OPC BACnet Interface, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services related to the installation of a BACnet interface on the existing Cimetrics system for monitoring of mechanical systems by the Central Utilities Plant.

- Lone Star Room Interior Design, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Interior design services associated with the updating of the Lone Star conference room in Terminal E including flooring, wall color, lighting, furniture and multimedia equipment.

- Terminal D Baggage System Modeling, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to model the system logic and faults based upon airline flight schedules.

- North Tower Relocation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Space planning, design, and move coordination services associated with relocating multiple departments within the Business Center North Tower office building.

- Terminal E Level 3 Office Space, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Space planning, design, and move coordination services associated with relocating terminal management to an abandoned space within Terminal E.

- Capital Development Program (CDP) Auction Support Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services related to the inventory and auction of surplus equipment purchased under the Capital Development Program to comply with the terms of the bonds used to finance the CDP.

- Terminal D North In-transit Lounge, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with developing a concept design to convert the existing unused international in-transit lounge to an inbound international passenger and crew processing center.

- Customer Service Relocation in Terminals A and C, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Space planning, design, and move coordination services associated with relocating the Customer Service Department within Terminals A and C.

- Grand Hyatt Curbside Signage, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop concepts to increase the visibility of the Grand Hyatt Hotel at Terminal D from the upper level roadway.

- Removal of South Airtran Bridge, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the removal of a low clearance abandoned Airtran train bridge over a public roadway.

- Off-Airport Parking Privilege and Common Busing Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services for two separate but related studies to review the privileges associated with off-airport parking operations and to review common busing operations at the airport as compared to those of other airports.

- Terminal D Hardstand Improvements, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the modification of a trash compactor enclosure and the replacement of a ruptured water line beneath the Terminal D ramp.

- RAC Garage Reallocation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services related to the reallocation of space within the rental car center garage based upon business volume of each rental car company.

- Terminal Access Ramp Traffic Analysis, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services to review construction plans for a proposed ramp widening to determine the necessity of the ramp widening due to schedule and cost concerns.

- Terminal A and B Intermodal, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to the further development of concepts associated with an intermodal facility between Terminals A and B.

- Ambassador Lounge in Terminal B Concept, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with a concept design for a break room in Terminal B for the airport's Ambassador volunteer program.

- Tenant Development Manual Addendum, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural services associated with revising the terminal tenant development manual to incorporate concepts and criteria developed for Terminal D to bring a more consistent feel to the other terminal buildings.

- Planning Support Staff, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services as required to support the operations of the airport planning department.

- Capital Asset Management Plan, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to develop a plan for the management of the airport's capital resources including a matrix to determine replacement intervals. This plan is based on the rental car center due to its separate operation.

- Thermal Rehabilitation Asbestos Abatement Plan and Monitoring, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Environmental support services to develop asbestos abatement plans and monitor the implementation of the plan, including material and air sampling and testing before, during and after the abatement.

- DFW/ASW Master Specifications, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services to incorporate DFW standard specification modifications into the new FAA Advisory Circular 150/5370-10B for FAA Southwest Region review and approval. These specifications will become the master specifications for airfield projects at the airport.

- Customer Care Center Power and Data, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of additional power and data cabling to customer care vending areas in Terminals A, B, C and E.

- Specialized CADD Support Services to Planning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. CADD support services to assist in a major reformatting of the airport layout plan.

- Field Support Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services associated with information technology issues in Terminal D.

- Rail Access Phasing and Benefit Cost Analysis, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with developing phasing for a new light rail and commuter rail station at the airport including benefits and costs for each phasing alternative.

- Terminal D Customs and Border Protection, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with miscellaneous projects requested by CBP in Terminal D shortly after opening.

- Administration Building Committee Room Remodel, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop a concept design for a remodel of the existing committee room in the administration building.

- Carbon Road East-West Connector Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop three concepts and cost estimates for providing access across the airport in an east-west direction with the closing of a primary access route due to the perimeter taxiway project.

- Health and Wellness Center Programming, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with developing concept designs for a health and wellness center in an existing airport building.

- Provide and Install Tunneller Software, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to purchase and install software related to the monitoring and management of remote mechanical sites by the Central Utility Plant.

- SkyLink Promotion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Graphic design services to develop a concept for increasing passengers' awareness of the SkyLink train system.

- Inspection and Assessment of Terminal D Dry Pipe Sprinkler Systems, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Inspection and engineering services to identify and assess the existence of microbiologically induced corrosion (MIC) in the dry pipe sprinkler systems in Terminal D after one year in service.

- FY06 Apron Rehabilitation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services

related to regular maintenance of pavement markings and joints on the aircraft parking aprons at Terminals A, B, C, and E.

- Grand Hyatt Entry Design Development, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop photographic concept documents for presentation to executive staff and hotel management for approval prior to development of construction documents.

- Terminal D Electric Vehicle Charging System, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with the installation of two banks of electric vehicle charging stations associated with a reassignment of gates at the southwest corner of Terminal D.

- SkyLink Passenger Count Survey, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Management services to oversee the counting of passengers on the SkyLink train system.

- Terminal A Inline Baggage Study Revalidation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to revalidate the assumptions made in the original concept study performed three years prior.

- On-Call Transportation Planning Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Provide staff for transportation planning services on an on-call basis.

- Terminal D Ramp Striping, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with restriping the aircraft parking positions at the south end of Terminal D to allow for higher efficiency in gate usage.

- Upgrade Sewer Ejectors at Terminal D, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Plumbing and electrical design services associated with replacement of the sewer ejector pumps due to numerous problems with clogging and the consequential backing up of raw sewage into the hotel.

- Grand Hyatt Interior Design Modifications, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Interior design services to modify suites in the Grand Hyatt including bathtub replacement with spa units.

- Terminal D Security Checkpoint Capacity Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Modeling services to determine the capacity of the security screening checkpoints in Terminal D based on existing configuration.

- Graphic/PowerPoint Presentation Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to develop PowerPoint presentations for multiple meetings.

- Employee Access Portals, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural design services to develop a concept design for secure 1542 employee portals to provide access from the non-secure side to the secure side of the terminal building.

- Regional Rail Corridor Issues and Constraints Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services to review and identify constraints and other issues related to a regional rail corridor for light rail and commuter rail on the airport property.

- American Airlines Train Station Wall Extension, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural design services associated with extending walls left short of the deck above to allow for additional advertising space.

- Architectural Support for Planning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to provide an on-site architect to support the Planning Department.

- Texas Accessibility Standards Survey, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Performed a review of the parking garages and accessible routes to Terminals A, B, C, and E for compliance with the Texas Accessibility Standards.

- FedEx Modifications, North Cargo, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services for modifications to an existing cargo building and parking lot prior to occupancy by FedEx.

- Terminal D PA Speaker, 4 Gates, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop construction documents to alleviate a lack of audibility of the public address systems in the northwest and southwest corners of Terminal D.

- Terminal D In-transit Lounge Phase 1, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with developing a second concept design to convert the existing unused international in-transit lounge to an inbound international passenger and crew processing center.

- TXU Duct Bank at International Commerce Park, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services associated with the extension of an electrical services duct bank in the International Commerce Park development.

- Section 1542 Employee Portals at Terminals A, B, C, and E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services to develop construction documents for the installation of security devices to reenergize existing 1542 employee portals to allow access from the non-secure to the secure side of the terminal building.

- Terminal C ATSAC Closeout, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Construction support services related to the review and approval of operation and maintenance manuals provided by the contractor's for the Terminal C Inline Baggage Explosive Detection System project.

- Terminal D 400Hz Assistance, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services related to the review and identification of problems associated with the installation of the 400 Hz power generators at Terminal D.

- Business Center North Tower and Administration Building Security Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design services related to concept design of security systems and CCTV improvements to limit unauthorized access to the facilities by non-employees.

- Terminal D Striping Study Phase II, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with gaining additional efficiencies for gates on south end of Terminal D. Identified and evaluated three alternatives based on projected schedules.

- East Side Access, 5E Redevelopment, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with developing a multi-use redevelopment plan for the 5E area incorporating access to the parking revenue area from the new Walnut Hill Lane extension.

- Caucus Room Replacement, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural and move coordination services related to reconfiguration of cubicle spaces to allow for the construction of a new Caucus Room in the Administration Building.

- North Airfield Drive Alignment and Rail Coordination, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with developing a proposed alignment for North Airfield Drive taking into account future rail access and adjacent highway improvements.

- North Airfield Drive Intersections Improvements Concepts, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services to develop alternatives for the improvement of intersections and determine traffic impacts at Mustang Drive and Main Street, Airfield Drive and Mustang Drive, and Airfield Drive and Freeport Parkway.

- Facility Planning Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Space planning services associated with identifying spaces for airport employees at 14 separate facilities based on the employee counts provided by each department and airport standards for workspaces.

- Construction Inspection Services for Intersection Improvements Projects, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Construction inspection services for intersection improvements including lane widening and additional and signalization changes.

- Conceptual Plan for the Wellness Center at Bear Creek, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural services related to the development of a concept design for converting the existing Bear Creek Racquet Club into a health and fitness center for employee use.

- Strategic Plan for DFW's Parking Services, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services related to the development of a strategic plan for parking services to increase the level of customer service and revenues.

- Terminal D Trench Drain Low Flow Deicing Capture, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services related to the modification of the existing trench drain foundation in the Terminal D ramp to capture very low flow events such as deicing operations.

- Terminal D Code Review of Revised Ticketing Hall Configuration, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Fire protection engineering services to review the impact to the fire strategy plan for Terminal D of adding a coffee concession to the existing ticketing hall.

- Master Control Room (MCR) Expansion at the Central Utility Plant (CUP), Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Design and construction support services associated with expanding the MCR to allow the addition of new LCD monitors to allowing viewing of additional CCTV feeds from throughout the airport.

- Construction Support Services for 1542 Portals, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Construction support services associated with the construction of employee portals to allow access from the secure to non-secure side of the terminal building.

- Signage Design Peer Review, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Structural engineering services associated with a review of the design of a Type III roadway sign support structure to determine possible modes of failure due to multiple sign failures.

- Traffic Signal Timing Plans for North Airfield Drive, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services associated with the development of traffic signal timing plans for signalization improvements at intersections of North Airfield Drive.

- Terminal D Admirals Club Elevator Air Conditioning, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services related to the addition of an air conditioning unit to the cab of the elevator serving an airline club in Terminal D.

- East Cargo Area Mass Grading, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services related to the development of a conceptual grading plan for an east cargo area development with the primary goal being to balance the earthwork across the project site.

- PowerPoint Presentations, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. General support services to develop PowerPoint presentations for multiple meetings.

- Terminal D Triturator Programming, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Planning services associated with the development of concept designs and rough order of magnitude estimates for alternatives to either provide water service to or replace an existing lavatory cart dump station between Terminals B and D.

- Frontier Airlines Common Use Self Service (CUSS) Devices-Terminal E, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services associated with the installation of three CUSS

devices in the vicinity of the Frontier Airlines ticketing counter in Terminal E. Includes architecture, electrical, and information technologies.

- 1542 Employee Portal at Terminal A/B Crossover Bridge, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services associated with the re-energization of an existing portal at the Business Center North Tower into the Terminal A/B Crossover Bridge including power and information technologies.

- Terminal D International In-transit Lounge Modifications, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Architectural services related to developing a concept design for a third alternative to provide inbound international passenger and crew processing.

- Terminal D Sewage Ejector Pumps Flow Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services to review the existing flows from the sewage ejector pumps and make recommendations to decrease maintenance of the systems and increase the system lifespan.

- Concessions Awareness, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Graphic design services to develop signage to increase travelers' awareness of products and services available within the terminal buildings.

- Terminal C Upper Level Roadway Recoat, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Senior Project Manager. Engineering services to develop construction plans for the recoating of the Terminal C upper level roadway to protect the existing concrete surface. Evaluation of the existing joints and recommendations for repair are also required. Received Award of Merit from International Concrete Repair Institute.

- Runway Projects, Corpus Christi International Airport , Corpus Christi, TX--Civil Engineer. Provided specialized airfield related expertise to design and construction management teams. Specific issues addressed included coordination of technical specifications and general and special provisions, constructability, airspace, and airfield operations impacts.

Carter & Burgess, Inc.

- Runway 17C Extension Phase II and HSE M3, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided design for a 2,012-foot long by 150-foot wide northward extension of Runway 17C and Taxiway M. Taxiways EF and EG at the north end of Runway 17R were extended eastward to the north end of the new Runway 17C Extension. Also included in the scope of this project was a new high-speed exit (M3) between HSE M2 and M3 that connects RW 17C to Taxiway M. The project also included the relocation and establishment of numerous permanent FAA navigational aids (NAVAIDS) systems facilities and infrastructure to include power lines, cables, ducts and other system distribution items and components. Responsibilities included airfield design including grading, pavement, jointing, marking, and phasing. Prepared construction cost estimates and a construction schedule to develop milestones. Project also included preliminary horizontal and vertical alignments for the proposed perimeter taxiways in the northeast quadrant of the airport. These alignments were evaluated against the FAA imaginary airspace surfaces as well as the existing North Airfield Drive and State Highway 114. Part of a Capital Improvement Program selected for the Texas OCEA Award in 2006 and selected as an international OCEA award finalist in 2006.

- Bell Helicopter Practice Facility, Alliance Airport, Fort Worth, TX--Project Manager. Provided site analysis and preliminary design and construction cost estimates for a new practice facility consisting of three asphalt runways and four concrete helipads including airfield lighting, windcone, and a relocated air traffic control tower cab.

- Glide Path Analysis, Hartsfield Atlanta International Airport, Atlanta, GA--Civil Engineer. Provided analysis of airspace for a new roadway, including potential signage and illumination, to provide access to the consolidated rental facility. Analysis included imaginary surfaces defined by both ICAO and FAA.

- Runway Safety Area Improvements, Killeen-Fort Hood Regional Airport, Killeen, TX--Project Manager. Provided preliminary engineering services for runway safety area improvements. Close coordination was required between the FAA, Army, City, and other consultants.

- Runway 15 Localizer Site Preparation, Killeen-Fort Hood Regional Airport, Killeen, TX--Project Manager. Provided preliminary engineering and design services for a new localizer installation. Close coordination was required between the FAA, Army, City, and other consultants.

- Security Gates Improvements at Austin-Bergstrom International Airport, Austin, TX; Project Manager. Provided preliminary engineering, design, and construction support services for repairing and/or replacing airfield operations area security gates.

- American Eagle Move to Terminal B, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Project Manager. Provided design for passenger boarding bridge modifications and apron striping removal and painting for the relocation of American Eagle operations to Terminal B and American Airlines operations to Terminal A.

- Cogeneration Plant, University of North Carolina Chapel Hill, Chapel Hill, NC--Civil Engineer. Provided design for effluent piping including oil-water separation and detention to mitigate peak flows into the existing sanitary sewer system.

- Terminal D Hardstand Paving, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided construction support services for construction of aircraft parking apron for new terminal building. Responsibilities included review and response to contractor requests for information and product submittals, coordination between various associated projects, and periodic site visits. Part of a Capital Improvement Program selected for the Texas OCEA Award in 2006 and selected as an international OCEA award finalist in 2006.

- Ted C. Connell Terminal Building C/A, Killeen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Provided construction support services for an 83,000 SF, blast resistant, passenger terminal building with six gates, 2nd level boarding, airport offices on 3rd level of central core, 6 airline ticket counters, in-line screening of checked baggage, office space for TSA employees, 6 car rental counters, 2 flat plate bag claim devices, concessions/retail space. Responsibilities included review and response to contractor requests for information and product data submittals. Provided detailed coordination between civil and architectural, electrical, mechanical, plumbing, and structural design, including passenger boarding bridges. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Glycol Capture, Killeen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Provided civil engineering and construction documents for the terminal loop road, operation road,

parking lots, and a glycol collection facility for the City of Killeen Joint Use Airport, Robert Gray Army Airfield. Responsibilities included the detailed analysis, calculation, design and coordination of storm water and glycol collection facilities including oil/water separation. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Terminal Apron and North Connector Taxiway Construction Support Services, Killeen-Fort Hood Regional Airport, Killeen, TX--Project Engineer. Provided construction support services for construction of the Terminal Apron and North Connector Taxiway Project at Robert Gray Army Airfield at Fort Hood Texas, part of the Joint Use Airport for the City of Killeen. The aircraft parking apron is 45,000 square yards and is large enough to accommodate eight regional jets. The apron was constructed of 12-inch jointed reinforced concrete pavement with a six-inch base course on lime-stabilized subgrade. Project included construction management services. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Reese Creek Road Sanitary Sewer, Killeen-Fort Hood Regional Airport, Killeen, TX--Project Engineer. Provided construction support services for the construction of approximately 5,900 linear feet of 12-inch diameter sanitary sewer line which will serve the Joint Use Airport Site. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Deicing Communications System Upgrade, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Upgraded existing 900 MHZ radio communication system for 9 de-icing stations to a land based system to provide more reliable, continuous service. Radio system had experienced interference which resulted in loss of communications and data between various de-icing stations and the central utility plant. Each de-icing station now connected to the central utility plant via dedicated leased phone lines and modems. Responsibilities included airfield coordination of construction requirements.

- Terminal Roads/Parking, Killeen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Provided construction support services to the City of Killeen Joint Use Airport, Robert Gray Army Airfield for its Terminal Loop Road-two lane divided asphalt roadway, 6 lane divided roadway at face of terminal building with 3 commercial lanes and 3 private vehicle lanes. A recirculation road back to the terminal building was also included. Parking/Operation Roads-Rental Car Storage area consisting of an asphalt parking lot capable of storing approximately 300 rental cars. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- American Airlines Flight 1107 Accident Investigation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Project Manager. Coordinated on-site field survey effort between Carter & Burgess, Federal Aviation Administration, National Transportation Safety Board, and American Airlines to document location of skid marks, scuff marks, aircraft parts, and final aircraft position. Prepared exhibits showing surveyed locations of items related to the airfield pavement surfaces.

- American Eagle Ramp Addition, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided design and construction support services for 40,000-square-foot aircraft ramp expansion. Design included demolition, grading, airfield pavement, airfield lighting, storm drainage including oil-water separation, and pavement markings.

- American Eagle Satellite Terminal Expansion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided design and construction support services for civil site improvements for the expansion of a commuter terminal facility. Design included demolition, grading, airfield pavement, airfield lighting, storm drainage including oil-water separation, water distribution, sanitary sewer collection and pavement markings. This was a fast-track project with close coordination of multiple bid packages.

- Automated People Mover Gate Impact Study, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided planning and design services for analysis of impact of proposed overhead guideway alignment on aircraft parking positions. Developed aircraft parking layouts for four terminal buildings consistent with airline requirements. Part of a Capital Improvement Program selected for the Texas OCEA Award in 2006 and selected as an international OCEA award finalist in 2006.

- Southwest De-Icing Fluid Runoff Detention Basin, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided design and construction support services for two-million-gallon deicing fluid collection pond including influent piping, effluent piping, valving, cover, and pond liner.

- Bell Augusta Training Facility, Alliance Airport, Fort Worth, TX--Civil Engineer. Adapted noise model (FAA Integrated Noise Model) prepared for environmental assessment to evaluate any increased impacts from proposed private development at airport from increased aircraft operations.

- Clear Creek Road, New Airport Road, and Sanitary Sewer Design, Killeen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Provided horizontal and vertical design for 5,840 linear feet of sanitary sewer line from proposed joint use airport site to existing lift station. A portion of this line was elevated to avoid undesirable subgrade conditions. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Regal Aviation Hangar, Love Field, Dallas, TX--Civil Engineer. Provided design for pavement demolition, airfield paving, automobile parking areas, grading, and drainage for new private hangar development.

- Pavement Rehabilitation, Denton Municipal Airport, Denton, TX--Civil Engineer. Provided preliminary design for various improvements including taxiway reconstruction, apron overlay, runway and taxiway rehabilitation, and helipad. Design included horizontal controls, construction details, and phasing plans.

- Airport Staff Support, Lehigh Valley International Airport, Allentown, PA--Civil Engineer. Provided design for replacement of existing passenger loading bridges based upon optimization of aircraft parking position and new fleet mix.

- Taxilane Pavement Design, Meacham Field, Fort Worth, TX--Project Manager. Provided airfield pavement design to City of Fort Worth for proposed taxilane extension.

- American Airlines Ramp Lighting, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Project Manager. Managed surveying mapping services to locate new high mast apron lighting for existing terminal apron. Provided light locations to avoid existing utilities and coordinates for FAA airspace application.

- East Parallel Taxiway Extension, Killen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Provided design and construction support services for 5,600-foot taxiway extension including grading, drainage, asphalt pavement and pavement markings. Coordinated design criteria for joint-use airport with City, Army and FAA. Provided construction support services. Part of a program to relocate air carrier service from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- American Eagle Terminal '1E', Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Provided design and construction support services for civil site improvements for new commuter terminal facility. Design included grading, airfield pavement, airfield lighting, storm drainage, pretreatment waste collection, water distribution, sanitary sewer collection and pavement markings. This was a fast-track project with close contractor coordination of multiple plan packages.

- Runway 17C Extension Phase I, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Graduate Engineer. Provided preliminary engineering, design, construction support, and construction management services for the relocation of ARFF roads and NAVAIDS facilities. Part of a Capital Improvement Program selected for the Texas OCEA Award in 2006 and selected as an international OCEA award finalist in 2006.

- Taxiway 'J' Widening Study, Dallas/Fort Worth Airport, Dallas/Fort Worth, TX--Graduate Engineer. Developed planning and programming study for widening of Taxiway 'J' at D/FW International Airport to accommodate larger aircraft.

- Compass Calibration Pad, Alliance Airport, Fort Worth, TX--Graduate Engineer. Provided preliminary site layout and design recommendations for a compass calibration pad.

- Noise Exposure Study, Alliance Airport, Fort Worth, TX--Graduate Engineer. Developed noise exposure maps for revised fleet mix using Integrated Noise Model. Evaluated existing airfield operations against previous projections. Calculated airport operations and fleet mix as input. Identified incompatible land uses from field investigation and aerial photography interpretation.

- Terminal B Expansion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Graduate Engineer. Designed demolition, paving, grading and utilities to support terminal building expansion. Designed asphalt pavement section and grades for additional ground service equipment parking. Relocated incinerators, solid waste compactor and container and deicing hot water tank. Evaluated existing passenger loading bridges and recommended relocation or modification. Provided construction phase services.

- Beacon Location Study, Alliance Airport, Fort Worth, TX--Graduate Engineer. Analyzed the effects of the airport beacon with respect to the air traffic control tower, runway approach slopes and local roadways at two locations using various tower heights and aiming angles. Also evaluated each beacon location and tower height against FAA criteria for obstructions. Provided sketches and coordinates to FAA for airspace analysis.

- Terminal '3W' Planning & Programming - Transportation, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Graduate Engineer. Planned and evaluated demolition, paving, grading and utilities on the airfield for construction of new terminal building.

- Planning and Programming, Killeen-Fort Hood Regional Airport, Killeen, TX--Civil Engineer. Prepared portion of Planning and Programming Report for landside and airside improvements pertaining to a taxiway extension and apron access including grading, drainage, utilities, and pavement design. Part of a program to relocate air carrier service

from Killeen Municipal Airport to Killeen-Fort Hood regional Airport, which was selected by the FAA as Southwest Region Texas Airport of the Year in 2004.

- Airport Improvements, Denton Municipal Airport, Denton, TX--Graduate Engineer. Provided construction support services for apron rehabilitation and expansion and runway safety area grading.

- Runway '17C' Extension, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Civil Engineer. Designed horizontal geometry, demolition plans, marking layout, reinforced concrete pavement and jointing plans for 2,013-foot runway and parallel taxiway extension. Developed construction phasing, contractor access and haul routes and height and work area restrictions. Provided construction support services. Part of a Capital Improvement Program selected for the Texas OCEA Award in 2006 and selected as an international OCEA award finalist in 2006.

- Terminal '2W' Expansion, Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Graduate Engineer. Designed grading plan for concrete apron expansion and concrete overlay areas with special attention to blast protection and existing storm drainage features.

- Parking Garage '2WA', Dallas/Fort Worth International Airport, Dallas/Fort Worth, TX--Graduate Engineer. Evaluated construction phase and permanent line of sight effects on air traffic control towers from new parking structure.

Espey, Huston & Associates, Inc.

- CargoAire Freight Facility, Austin-Bergstrom International Airport, Austin, TX--Graduate Engineer. Provided design, plans for airside and landside improvements including parking and utilities, cost estimate and specifications for private air freight lease lot development. Project not constructed.

- East Runway System, Austin-Bergstrom International Airport, Austin, TX--Graduate Engineer. Provided support and design for new 9,000-foot by 150-foot air carrier runway. Project included pavement and utility demolition, pavement design, grading and drainage improvements, runway and taxiway lighting design, perimeter roadway, access roadway relocations and construction services. Coordinated subconsultant activities, provided specifications and cost estimates. Provided construction support services.

- State Aircraft Pooling Board Apron, Austin-Bergstrom International Airport, Austin, TX--Graduate Engineer. Provided geometric layout for access taxiway across glide slope critical area, coordinated subconsultant activities, calculated quantities.

- Airport Master Plan, Georgetown Municipal Airport, Georgetown, TX--Graduate Engineer. Provided development alternatives for airside and landside improvements with cost estimates, developed new corporate apron layout plans, modeled aircraft noise impacts with Integrated Noise Model.

- Hangar Lot Design, Georgetown Municipal Airport, Georgetown, TX--Graduate Engineer. Designed airside and landside paving and utility improvements to support private hangar lease lot developments.

- Water Quality / Detention Basin, Georgetown Municipal Airport, Georgetown, TX--Graduate Engineer. Provided design, plan and specifications for water quality and detention basin to comply with TNRCC water pollution abatement plan requirements.

- Analysis and Comment on Part 150 Study, Lambert-St. Louis International Airport, St. Louis, MO--Graduate Engineer. Provided support for analysis of Part 150 study for suburb of St. Louis. Modeled aircraft noise effects with Integrated Noise Model.

- Airport Improvements, Lampasas Municipal Airport, Lampasas, TX--Graduate Engineer. Provided design for runway overlay, reconstruction and extension, change LIRL to MIRL and install PLASI. Designed grading required to comply with FAR Part 77.

- Preliminary Detention Ponds, Northwest Arkansas Regional Airport, Bentonville, AR--Graduate Engineer. Provided support for design of preconstruction detention basins to handle runoff from future construction activities.

- Airport Improvements, Smyrna Airport, Smyrna, TN--Graduate Engineer. Provided construction documents for paving, fencing and signage improvements.

- Feasibility Study, Somervell County Airpark, Glen Rose, TX--Graduate Engineer. Designed runway and taxiway system alignment, both horizontal and vertical, and terminal area plan. Insured compliance with FAA requirements. Provided cost estimate for airfield construction.

Computer Program Fluency

CADD and Associated Programs:
- AutoCAD
- MicroStation
- InRoads/SelectCAD
- Microstation Descartes
- AutoTurn / AeroTurn
- Corpscon
- Civil3D

Airfield Pavement Design:
- F806faa
- R805faa
- LEDFAA
- FAARFIELD

Aircraft Noise Modeling:
- INM 5.2
- INM 6.0b

Hydrology and Hydraulics Design and Evaluation:
- STORMCAD
- FlowMaster

Project Management:
- MS Project
- Primavera SureTrak

RICONDO & ASSOCIATES

Stephen D. Culberson

Director

Education

Bachelor of Science – Biology, The College of William & Mary
Master of Science – Information Systems Management, Loyola University Chicago

Publications

"Environmental Impacts of Airports" in *Airport Engineering: Planning, Design, and Development of 21st Century Airports, Fourth Edition*, N. J. Ashford, S. A. Mumayiz, and P. H. Wright. New Jersey: John Wiley & Sons, 2011.

Speaking Engagements

Annual Basics of Airport Law Workshop, "Airport Planning and Development", 2008 & 2011
FAA Great Lakes Conference, "Airport Environmental Actions in Illinois," 2000
National Association of Environmental Professionals Conference, "GIS Applications in the Illinois-Indiana Regional Airport Program," 1994

Experience

Mr. Culberson joined Ricondo & Associates, Inc., in 2005 and has more than 25 years of experience conducting and managing environmental impact analyses and planning projects for a wide variety of airport projects. His responsibilities include planning, assessing, and documenting proposed airport projects in compliance with the National Environmental Policy Act (NEPA), relevant Federal Aviation Administration (FAA) guidance, and state environmental laws including the California Environmental Quality Act (CEQA). His airport planning experience includes managing the development of forecasts and facility requirements for the Clark County Department of Aviation for submittal to the FAA and the U.S. Department of the Interior, Bureau of Land Management in support of the Environmental Impact Statement (EIS) for the proposed Southern Nevada Supplemental Airport (Las Vegas). His CEQA experience includes managing the Environmental Impact Report (EIR) for the Midfield Satellite Concourse at Los Angeles International Airport, an EIR and Environmental Assessment (EA) for the Runways 6L-24R and 6R-24L Safety Area Improvements at Los Angeles International Airport, an EIR and EA for Runway 7L-25R Safety Area and Associated Improvements at Los Angeles International Airport, and an EIR for the South Field Airport Traffic Control Demolition at Oakland International Airport. He is the project manager for the Northeast Area Development Plan EA at Phoenix-Mesa Gateway Airport and overseeing CEQA analysis of the replacement terminal portion of an EIR at Bob Hope Airport (Burbank, California).

He has been project manager for numerous EAs at airports including Blue Grass (Lexington, Kentucky), Bob Hope, Charleston International, Dallas Love Field, El Paso International, Kahului (Maui), Los Angeles International, Phoenix Sky Harbor International, San Diego International, and San Francisco International Airports.

Mr. Culberson completed planning tasks for a stormwater/flood control plan for the Southern Nevada Supplemental Airport and continues to assist the Clark County Department of Aviation in protecting the proposed airport site from various energy and transportation projects proposed in adjacent areas. He was the project manager for an EA on the relocation and reorientation of Runway 8-26 at Blue Grass Airport, and prepared Categorical Exclusions for renovation of the aircraft rescue and firefighting training center and for relocation of an airfield lighting vault at the airport. He was the project manager for on-call planning and financial services for El Paso International Airport, and a project analyzing the potential effects of National Park Service initiatives on the operations of Stinson Municipal Airport in San Antonio. He also managed a wildlife hazard assessment and wildlife hazard

management plan at Joslin Field/Magic Valley Regional Airport (Twin Falls, Idaho) and managed two wildlife hazard assessments for Palm Beach County Department of Airports.

Earlier, Mr. Culberson conducted the alternatives analysis for an EA examining runway safety area improvements for Runway 1-19 at Reagan Washington National Airport, and was the environmental task leader for the MidAmerica St. Louis Airport master plan update. He was also the project manager for an EA on a runway extension at Stinson Municipal Airport in San Antonio, and a Categorical Exclusion for a runway extension at El Paso International Airport. Mr. Culberson was the lead author of the EA for the Community Noise Reduction Program at Phoenix Sky Harbor International Airport; assisted in the alternatives analysis for the San Diego County Airport Site Selection Program; and prepared documentation on sustainable construction practices for the Transportation Research Board, Airport Cooperative Research Program.

In 1996, Mr. Culberson was the environmental scientist responsible for assessing four alternatives sites for a replacement airport for Juan Santamaria International Airport in Costa Rica. He identified potential environmental effects at each site based on the environmental laws of Costa Rica and International Civil Aviation Organization (ICAO) guidance. Between 1989 and 2005, Mr. Culberson worked for a national consulting engineering firm under contract with the Illinois Department of Transportation (IDOT), for which he assisted with planning for a new supplemental commercial airport serving the Chicago region, referred to as the South Suburban Airport (SSA). Mr. Culberson was the deputy environmental manager of the EA documenting the potential impacts of the SSA, project manager for the IDOT supporting the FAA's Tier 1 EIS on site selection and land acquisition, and environmental manager for the IDOT supporting the FAA's Tier 2 EIS for the SSA inaugural airport program.

Representative Assignments

Categorical Exclusions
Environmental Assessments
Environmental Impact Reports
Environmental Impact Statements
Environmental Planning
Land Use Compatibility Planning
Master Planning
Site Selection Studies
Sustainability Initiatives
Wildlife Hazard Assessments

Representative Clients

Burbank-Glendale-Pasadena Airport Authority
City and County of San Francisco, Airport Commission
City and County of Twin Falls (Idaho)
City of El Paso
City of Phoenix Aviation Department
City of San Antonio Aviation Department
Clark County Department of Aviation (Nevada)
Federal Aviation Administration
Lexington-Fayette Urban County Airport Board
Los Angeles World Airports
Metropolitan Washington Airports Authority
San Diego County Regional Airport Authority
State of Hawaii Department of Transportation, Airports Division
State of Illinois Department of Transportation
Transportation Research Board, Airport Cooperative Research Program

Appendix C

West Aircraft Maintenance Facility at the Los Angeles International Airport (LAX) – Letter from Futterman Consulting Inc. Dated February 12, 2014

Futterman Consulting Inc.

February 12, 2014

Ms. Lisa Trifiletti
Los Angeles World Airports
One World Way
Los Angeles, CA 90045

Re: West Aircraft Maintenance Facility at the Los Angeles International Airport (LAX)

Dear Ms.Trifiletti:

As you requested, I have conducted an independent technical review of the planned West Aircraft Maintenance Facility (WAMA) described in the Draft Environmental Impact Report (EIR) to determine the likelihood of any potential increase in aircraft operations. I have spent my 35 year career in aviation in the planning and development of large airports like LAX, helping many clients deal with complex issues, including the dispositions of aircraft maintenance facilities. My principal technical area of focus has been in airport planning and specifically in airport capacity and delay. I have worked with major airports studying and recommending airport capacity projects, including LAX, Atlanta, Seattle, Minneapolis and Salt Lake City. This work involved new runway planning and construction, and participation in Federal Aviation Administration Capacity and Delay Task Forces. My resume is attached.

In my expert opinion, the types of maintenance facilities contemplated for WAMA, like at other major hub, land constrained airports, will serve flights that the airlines are already operating, or planning to operate. The WAMA project alone will not generate any increase in aircraft operations at LAX and will not increase capacity for aircraft operations in the future. This conclusion has also been reviewed and confirmed by a number of other technical aviation experts including the following: Mr. Arnold Rosenberg, P.E., Senior Vice President, National Director of Aviation Program and Construction Management Services for Parsons Brinckerhoff, with over 24 years of professional experience in airport planning, engineering, and operations; and Mr. Stephen Culberson, Director at Ricondo & Associates with over 22 years of professional experience in airport planning and environmental impact analysis of airport projects.

As noted in the Draft EIR, the WAMA Project is intended to to "… consolidate, relocate, and modernize some existing maintenance facilities and activities including parking areas (RON/RAD) for existing aircraft and employees" and specifically not to expand the capacity for aircraft operations at LAX. I understand that the City of El Segundo is concerned that the WAMA Project would result in an increase in aircraft operations at

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LAX due to the construction of new maintenance facilities and aircraft remain overnight (RON)/remain all day (RAD) parking apron.

The initial use of WAMA is planned to accommodate the relocation of existing Qantas aircraft maintenance facilities and functions, which were identified and approved for demolition as part of the Bradley West Project. The existing Qantas facility supports their existing operations, and in my view, the relocated facilities will continue to do just that - serve Qantas's existing operations, and those operations planned to meet Qantas's future passenger traffic and cargo needs included in the LAX Master Plan forecasts.

After Qantas is relocated, the WAMA has space available for a second tenant. The LAX Master Plan identifies the midfield area as the future location of an additional crossfield taxiway and a midfield satellite concourse, which are being studied by LAWA at this time for immediate implementation. The midfield area where the LAX Master Plan identifies these planned facilities being located is currently occupied by a number of facilities including an US Airways maintenance facility and an American Airlines maintenance facility. It is unlikely that LAWA would permit a new maintenance facility (i.e., not a replacement facility) to be constructed on the WAMA site when future plans indicate that other existing maintenance facilities on the airport will need to be demolished and possibly relocated. It is also difficult to predict with any certainty what the existing operators of the maintenance facilities in the midfield area will do when those facilities need to be demolished. Ultimately, a business decision will be made by the respective airlines at the appropriate time whether to relocate on airport at LAX or relocate their maintenance operations to a facility at another airport. It is unlikely that any relocated uses would result in new operations beyond those in their existing facilities.

In the case of WAMA, the provision of maintenance facilities and RON/RAD parking spaces could nominally increase operations if they were new or additional facilities, but they are not new or additional facilities. They are intended as facilities for replacement and/or consolidation of existing operations; practically, on a long term basis, they do not add incrementally to the overall facilities at the airport.

Due to the existing demand for gates at LAX, no aircraft are allowed to park at an aircraft gate for an extended period of time; if an aircraft has an extended layover at the airport, they are towed from the aircraft gate to apron parking locations in the midfield or to the West Remote Pads/Gates. Because the LAX Master Plan calls for the development of an additional crossfield taxiway and midfield satellite concourse in the midfield area of the airport, existing RON/RAD parking spaces will be displaced. The proposed WAMA Project will replace RON/RAD spaces being displaced as part of the LAX Master Plan development, help reduce congestion in the midfield area, and provide additional options for airlines and air traffic controllers to move and park aircraft as needed.

Like LAX, many airport owners with limited land availability have systemically scaled back airline maintenance facilities through planning and development exercises, as they are not the highest and best use of limited land resources to meet airport traffic demands. The constrained airports are focused on utilizing limited land resources to meet necessary forecast demand, and not to develop facilities that will produce excess operations that will result in delays to passenger and cargo flights. In the case of Washington National Airport, the airport master plan in the 1980's that I was involved with identified a systematic approach to reduce the number of hangars on the airport as space was needed for more critical terminal and support infrastructure. Over the years, as the new main terminal was developed, many of the hangars were permanently removed.

In stark contrast to LAX, I have worked with airports at the other end of the spectrum that intentionally develop large maintenance facilities to attract economic development. These airports have excess land, very competitive labor costs, and excess airfield runway capacity with minimal aircraft delays. None of these are characteristics of LAX.

One such example is Indianapolis International Airport, which developed a large 12 bay, 1.7 million square foot maintenance facility in 1994 to support United Airlines. The anticipated traffic was well beyond what United would have otherwise flown to Indianapolis for passenger activity, but there was available land and the airport sought ways to bring more jobs to the City. Unfortunately, United abandoned the facility in 2003, and the airport took over the base and has attracted other tenants.

The Indianapolis example is the other end of the spectrum compared to the busy, land constrained airports with limited available capacity and higher labor costs that I have also worked with, including LAX, Washington National, JFK, San Francisco, Seattle and others. At these airports, maintenance facilities, if they are permitted to exist at all, primarily support passenger and cargo flights required to meet passenger and cargo demands, and the maintenance facilities typically do not themselves generate traffic. In several cases, planning efforts are considering closing down or downsizing some of these maintenance facilities to free up space for facilities needed to serve forecast traffic.

With only relocated tenants likely to operate at the WAMA site, it is highly unlikely that the development would have any impact on the total number of planned operations at LAX as presented in the approved Master Plan.

In summary, it is my opinion that the replacement WAMA facility at LAX is an example of the type of facility that will accommodate relocated facilities that are already providing aircraft maintenance functions, and will be used to support operations taking place to meet forecast passenger and cargo traffic.

Thank you for the opportunity to comment on the WAMA project.

Very Truly Yours,

Evan C. Futterman
President and CEO
Futterman Consulting, Inc.

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Evan Futterman is President and CEO of Futterman Consulting Inc, a firm he founded in 2008. The firm works with airports, aviation consultants and other aviation organizations to develop strategic business plans, and to plan and develop airport infrastructure.

EVAN C. FUTTERMAN, AICP

Firm
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Education
B.S., Air Commerce, Florida Institute of Technology, 1978

Professional Registrations
AICP 1993

Professional Affiliations
Airports Consultants Council (ACC), Board Chair 2008-2009
Airports Council International-North America – World Business Partners/Associates Board of Directors 2010-2012

Years of Experience
35

Mr. Futterman has been active on ACRP projects. He recently served as PI on ACRP 03-21 developing a best practices guidebook for building and maintaining support for airport capacity projects. He also is part of the Dissemination Team for ACRP 11-05. Recently, Mr. Futterman has worked with the Port Authority of New York and New Jersey to advance long term runway capacity initiatives, and he is also presently working with Los Angeles World Airports (LAWA) in a leadership role in the Capital Planning and Programming Group (CPPG), leading the development of a comprehensive plan for LAX.

Mr. Futterman is also currently serving as an advisor to San Francisco International Airport, providing advanced planning oversight and management training to the Bureau of Design and Construction.

Prior to establishing Futterman Consulting, Mr. Futterman served as Chairman of Aviation Services for HNTB Corporation for 10 years. Under his guidance, the practice grew into a $100 million a year full service, offering airport planning, design, program management and airport business services. In his lead role, Mr. Futterman was responsible for the strategic direction and management of the firm's practice worldwide as well as project delivery, quality assurance and client satisfaction on all aviation projects.

Mr. Futterman was the firm's most senior airport planner. He actively worked with key clients, including Hartsfield-Jackson Atlanta International Airport, Minneapolis-St. Paul International Airport, Seattle-Tacoma International Airport and Salt Lake City International Airport, to define long-range visions for their airports and help implement multi-billion-dollar capital improvement programs. He has a track record of success in helping clients build consensus among project stakeholders, including extensive work to gain airline support for projects.

Mr. Futterman was with HNTB from 1979 to 2008. He has extensive project experience in the planning, design, implementation and management of airfield, landside and terminal projects at the nation's busiest airports. He has an excellent reputation with airports and airlines and is respected for his ability to integrate broad stakeholder perspectives into planning and design projects. Mr. Futterman has served on the boards of major aviation industry organizations, including Chairman of the Board of Directors of the Airport Consultants Council (ACC) in 2009, and on the ACI-NA World Business Partners/Associates Board for 2010-2012. Mr. Futterman has authored numerous articles and spoken at key industry events on multiple aspects of airport development.

A sampling of Mr. Futterman's professional expertise includes:

- Strategic, long-range planning for major airports in Minneapolis, Seattle, Tampa, Salt Lake City, Washington DC, Atlanta, New York and Los Angeles.
- Detailed planning and programming for new air carrier runways, including in Minneapolis, Seattle, Salt Lake City, Atlanta, Indianapolis and Kansas City.
- Extensive and innovative noise abatement and mitigation studies for noise-sensitive airports throughout the United States.
- Involvement in numerous Airport Capacity Enhancement Plans and conferences. He is recognized industry-wide for his airfield capacity expertise.
- Peer reviews of overall development plans and for the feasibility of specific projects.

Specific project experience includes:

Port Authority of New York and New Jersey (PA) – Mr. Futterman is acting as a senior advisor to the PA on advancing capacity initiatives for their airport system. A recent Regional Plan Association study recommended new runways at JFK and EWR airports, and Mr. Futterman is working with the PA senior staff to study these and other capacity options, and to advance them through the planning, environmental and political process.

Los Angeles World Airports (LAWA) – Mr. Futterman is serving in a leadership role in the Facilities Planning Division, steering the development of a comprehensive development plan for LAX, including airfield, terminal, landside and intermodal components. He is devoting a significant portion of his time in this effort.

Hartsfield-Jackson Atlanta International Airport – Mr. Futterman served as Project Director for the Strategic Planning element of HNTB's Joint Venture Planning assignment at Hartsfield-Jackson Atlanta International Airport. In this role, he led development of an updated long-term plan for the airport, which focused on the location and general configuration of new terminals, access and parking facilities, additional taxiway locations, and mass transit/commercial vehicle access. The goal of the work was to define the most efficient and cost-effective development plan for the airport for 2010 and 2025. A key component of this project was developing consensus among stakeholders with differing perspectives.

Seattle Airport Comprehensive Development Plan – Mr. Futterman served as Principal-in-Charge/Senior Technical Advisor on the HNTB-led Comprehensive Development Plan for Seattle-Tacoma International Airport. His role included technical oversight of the development of a revised long-term plan for the airport, leading key meetings of the project team and Port Commission, and utilizing his long history of planning experience at the airport to develop an incremental implementation plan to minimize the cost per passenger for airlines at the airport. The plan reduced the previous master plan's projected costs by more than $1 billion. He also was the lead planner for the new third parallel runway at the airport, which opened to traffic in 2008.

Metropolitan Washington Airports Authority On-Call Services – Mr. Futterman served as the Principal-in-Charge throughout the eight years (1996-2004) that HNTB served as On-Call Planning Consultant to

the Metropolitan Washington Airports Authority for Dulles and National Airports. This role included involvement in key long-term planning issues such as new terminal and runway placement, as well as assisting with sensitive day-to-day issues that arise in the Authority's dealings with key decision-makers, the FAA and other interested parties. Mr. Futterman also served as Principal-in-Charge for the HNTB design of the Tunnel Program at Dulles.

Minneapolis-St. Paul International Airport (MSP) – Mr. Futterman led all planning activities for this client for the past 15 years. Key projects included overall project management responsibility for a complex site selection/Master Plan Update/FAR Part 150/Environmental Impact Statement. Master plans and EISs for both expansion of the current airport and development of a replacement airport were fully developed. The Metropolitan Airports Commission and the Minnesota State Legislature acted in April 1996 to move forward with implementation of the expansion plan for MSP that HNTB and Mr. Futterman then helped to develop. The FAA and state approved the federal and state EISs in 1998 for the MSP 2010 Plan, and a new runway opened at MSP in 2005.

Salt Lake City International Airport (SLC) – Mr. Futterman was Project Director for the airport master plan update and Part 150 Noise Compatibility Study, which were completed in 1998. He also and served as Project Director for HNTB's on-call planning contract through 2008. The master plan addressed how to provide facilities for short-term needs while also developing a world-class, long-range plan. The master plan was expanded by the airport authority to further detail the recommended plan into a conceptual design for a replacement terminal building. HNTB was selected in early 1998 to be Master Architect for the new facility, and Mr. Futterman's role continued as Project Planner. He also served as Principal-in-Charge for the Runway End Deicing Studies and Design during 2008.

Tampa International Airport Master Plan/Part 150 Study Update (TPA) – Mr. Futterman served as Principal-in-Charge and Project Director for a master plan update and Part 150 study for Tampa International Airport. The airport recently marked the 30-year anniversary of its new terminal area, and the updated long-term plan provides a blueprint for development for the next 20 to 30 years. Options for expanding landside terminal areas, as well as the timing and need for additional runway capacity, were among major project issues addressed.

Denver International Airport, Indianapolis International Airport, Daytona International Airport, Fort Lauderdale International Airport, and Roanoke Regional Airport – Mr. Futterman was Principal-in-Charge for airport planning projects and environmental studies at all of these important airports. IN particular, he was the lead planner for the site selection study for the new Denver International Airport.