Part 150 Noise Exposure Map Update Report

LA/Ontario International Airport

LA/OntarioInternational
Los Angeles World Airports

September 2015

Noise Exposure Map Update

LA/Ontario International Airport

In Compliance with

14 CFR Part 150

September 2015

LA/OntarioInternational

Los Angeles World Airports

Los Angeles World Airports
1 World Way
Los Angeles, CA 90045

LA/OntarioInternational
Los Angeles World Airports
TM

SPONSOR'S CERTIFICATION

This is to certify under penalty of 18 U.S.C. §1001 the following are true and complete:

(1) Pursuant to 14 C.F.R. Part 150, Subpart B, Section 150.21(a), the "Existing Conditions (2015) Noise Exposure Map" (Figure 13 on page 49) identifies each noncompatible land use in each area depicted on the map, as of the date of submission, and the "Forecast Conditions (2020) Noise Exposure Map" (Figure 14 on page 51) accurately represents forecast conditions for the fifth calendar year beginning after the date of submission (based on reasonable assumptions concerning the future type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including any planned airport development, planned land use changes, and demographic changes in the surrounding areas); and the nature and extent to which those forecast operations will affect the compatibility and land uses depicted on the map.

(2) Pursuant to 14 C.F.R. Part 150, Subpart B, Section 150.21(b), all interested parties have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft noise exposure map and descriptions of forecast aircraft operations.

(3) Pursuant to 14 C.F.R. Part 150, Subpart B, Section 150.21(e), the revised Noise Exposure Maps and associated documentation for LA/Ontario International Airport submitted in this volume to the Federal Aviation Administration under 14 C.F.R. Part 150, Subpart B, Section 150.21, are true and complete.

By: Deborah Flint

Title: Executive Director

Date: Sept 16, 2015

Airport Name: *LA/Ontario International Airport*

Airport Owner/Operator: Los Angeles World Airports

Address: 7301 World Way West, Los Angeles, CA 90045

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Glossary

ADO	-	Airports District Office
AIP	-	Airport Improvement Program
ALUC	-	Airport Land Use Commission
ALUCP	-	Airport Land Use Compatibility Plan
ANCA	-	Airport Noise and Capacity Act
ANOMS	-	Airport Noise and Operations Management System
ASDI	-	Aircraft Situation Display for Industry
ASNA	-	Airport Safety and Noise Abatement Act
ATADS	-	Air Traffic Activity Data System
ATCT	-	Air Traffic Control Tower
CFR	-	Code of Federal Regulations
CNEL	-	Community Noise Equivalent Level
dB	-	Decibel
DNL	-	Day-Night Average Sound Level
ETMSC	-	Enhanced Traffic Management System Counts
FAA	-	Federal Aviation Administration
GIS	-	Geographic Information System
HMMH	-	Harris Miller Miller & Hanson Inc.
HUD	-	Department of Housing and Urban Development
INM	-	Integrated Noise Model
LAWA	-	Los Angeles World Airports
MAP	-	Million Annual Passenger
NCP	-	Noise Compatibility Program
NEMs	-	Noise Exposure Maps
NLR	-	Noise Level Reduction
OAG	-	Official Airline Guide
OANAC	-	Ontario Airport Noise Advisory Committee
ONT	-	LA/Ontario International Airport
QHP	-	Quiet Home Program
ROA	-	Record of Approval
RSIP	-	Residential Sound Insulation Program
TAF	-	Terminal Area Forecast
USDOT	-	United States Department of Transportation

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1 INTRODUCTION

This document provides an update of the LA/Ontario International Airport (ONT) Noise Exposure Maps (NEMs) to reflect current conditions and forecast aircraft operational activity. The Noise Exposure Maps identify noise exposure from aircraft operations at ONT and assess the compatibility of nearby land uses. The primary product of an NEM update is a set of maps that display the aircraft noise exposure in terms of Community Noise Equivalent Level (CNEL) along with the surrounding nearby land uses. Noise exposure is presented on the maps in contours of equal noise exposure much like terrain maps use contours to show equal ground elevation. These maps are used to define the areas in which federal funds can be used to implement Noise Compatibility Program (NCP) measures such as land acquisition and sound insulation.

Federal Aviation Administration (FAA) regulations require airports to mitigate incompatible aircraft noise in areas from highest to lowest noise levels and federal funds may only be used to mitigate aircraft noise within the CNEL 65 dB contour (CNEL 65 dB and higher noise exposure levels). Federal funds may be used for noise mitigation of noise sensitive properties within the CNEL 65 dB noise exposure contour. For eligibility of federal funds to provide sound insulation, the noise sensitive rooms, on average, within the structure must have an interior CNEL of 45 dB or higher[1].

To ensure federal funds are appropriately used for NCP implementation, current FAA guidelines require airports to maintain their NEMs to reasonably represent current conditions. Specifically, if changes have occurred resulting in an expected CNEL increase or decrease of 1.5 dB or greater over compatible or incompatible land use (Part 150, Section 150.21(d)), respectively, the NEMs must be updated. If the NEMs are more than five years old, the airport must confirm in writing that the maps continue to be a reasonable representation of the conditions at the airport. Since the 1990 NEM submittal for ONT, which the FAA accepted, no longer represents current airport conditions, Los Angeles World Airport (LAWA), owner and operator of ONT, is updating the ONT NEMs based on notification from the FAA to the City of Ontario's Quiet Home Program (QHP) that the program would no longer qualify for federal funding based on the 1990 NEM. Since 2012, the QHP has received no funding from the FAA. LAWA therefore embarked upon the NEM Update.

This section provides a summary of the regulation supporting airport noise compatibility planning, a brief history of noise compatibility planning at ONT, an overview on implementation of the regulation, roles and responsibilities of the participating groups, and a completed copy of the FAA NEM review checklist. The balance of the document presents the information required by regulation and FAA guidance including:

- The development of the ONT aircraft noise exposure contours – Section 2
- The ONT Noise Exposure Maps and land use compatibility – Section 3
- The public consultation program implemented for this ONT NEM Update – Section 4

Appendix A of this document provides a reference to aircraft noise fundamentals and terminology to assist the reader in understanding the information contained herein.

1.1 Purpose of this NEM Update

The City of Ontario manages the noise mitigation measures (such as sound insulation and land acquisition of residential properties) under its Quiet Home Program (QHP). The QHP uses the NEMs to determine participant's eligibility and receives funds from both the FAA and LAWA to implement noise mitigation

[1] Airport Improvement Program Handbook, Federal Aviation Administration Order 5100.38D, Appendix R.

measures. In the fall of 2012, the FAA notified the officials of the QHP that their program is no longer qualified for additional grants due to the age of the existing NEMs. As such, LAWA initiated the process to update the NEMs and accomplish the following goals:

- Accurately reflect current NCP implementation and current and forecasted aircraft operations at ONT
- Collect and analyze information regarding current and forecasted operations as it relates to aircraft noise and land use compatibility at ONT
- Determine and report the updated current and forecast aircraft noise exposure contours at ONT
- Evaluate land use compatibility within the updated existing and forecast aircraft noise exposure contours to determine whether there is potential for continued eligibility of the ONT NCP measures using federal funds
- Share updated data and information with the public

1.2 Overview of the Airport Noise Compatibility Planning Regulation

The emphasis on aircraft noise compatibility planning in the United States started with the passing of the Aviation Safety and Noise Abatement (ASNA) Act of 1979. This act gave the FAA authority to provide assistance to airport operators to prepare and carry out noise compatibility programs. The FAA assistance includes both regulatory guidance and financial support. The FAA implemented the ASNA noise-related regulatory requirements in Title 14 of the Code of Federal Regulations (C.F.R.) Part 150, "Airport Noise Compatibility Planning" [2].

The regulation, most commonly referred to as "Part 150,"sets forth standards for airport operators to use in documenting noise exposure in their airport environs and for establishing programs to minimize noise-related land use incompatibilities. While participation in this program by an airport is voluntary, over 250 airports, including ONT, have participated in the program, which assists in standardizing noise analysis at a national level. FAA provides funding support under the federal Airport Improvement Program (AIP). The agency has provided over $100 million in AIP grants for Part 150 studies, and for over $5 billion in grants for implementation of noise compatibility measures.

Part 150 sets forth a process for airport proprietors to follow in developing and obtaining FAA approval of programs to reduce or eliminate incompatibilities between aircraft noise and surrounding land uses. In establishing the requirements for the development of noise compatibility programs at airports, Part 150 prescribes specific standards and systems for:

- Measuring noise
- Estimating cumulative noise exposure
- Describing other means to assess the impacts of noise (including single aircraft event levels and cumulative levels)
- Coordinating Noise Compatibility Program (NCP) development with local land use officials and other interested parties
- Documenting the analytical process used in developing the NCP
- Submitting documentation to the FAA
- Providing for FAA and public review processes

A Part 150 study includes two principal elements: (1) the Noise Exposure Maps (NEMs) and (2) the Noise Compatibility Program (NCP); however, the NEMs may be updated independently of the NCP. The NEMs identify existing and potential future noise / land use compatibility within the 65-decibel (dB)

Community Noise Equivalent Level (CNEL)[3] noise contour. Federal guidelines and standards adopted by LAWA and local jurisdictions identify the CNEL 65-dB noise contour as the outer limit of the area within which any category of land use may be considered incompatible with aircraft noise (for example, residences, schools, and places of worship). The NCP recommends actions that may be taken – by a wide range of entities – to minimize or eliminate those incompatibilities.

LAWA is updating only the NEMs at this time. This NEM Update includes a full review of the existing NCP measures and implementation status of each measure in Appendix B; however, no additional measures or updates to the NCP are undertaken.

1.2.1 Noise Exposure Maps

The NEM documentation describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs, and the resulting noise/land use compatibility situation. The aircraft noise exposure is expressed in decibels (dB) in terms of the Community Noise Equivalent Level (CNEL). Contours of equal CNEL values, similar to topographic contours of equal elevation, form the basis for evaluating the noise exposure to the community. The NEMs must address two time frames: (1) data representing the year of submission (the "existing conditions") and (2) the fifth calendar year or later following the year of submission (the "forecast conditions"). The NEMs and associated background data also address how the forecast operations will affect the compatibility of the land uses depicted.

The primary objective is to describe the current and forecast conditions at the airport and the noise effects of the aircraft activity on the surrounding communities. While this description is normally processed into individual noise exposure maps, Part 150 requires more than a simple "map" to provide all the necessary information. The information required to provide the graphics and background for analysis includes such tasks as:

- Collecting historical aviation activity data such as aircraft fleet mix, number and type of operations, runway utilization
- Developing a forecast aircraft activity for a period at least five years in the future from the year representing the existing conditions
- Determining aircraft flight tracks and usage based on radar data from LAWA's Airport Noise and Operations Management System (ANOMS)
- Creating the necessary inputs to the FAA Integrated Noise Model using the average annual input conditions to include airport configuration, meteorological data, operations, etc.
- Obtaining approval for user-specified aircraft substitutions or profiles from the FAA
- Collecting data from local jurisdictions to establish detailed land use data in the airport environs
- Estimating population data within the local area

Therefore, in addition to the graphical elements, the NEM submission must document, through tabulated information and text discussions, the noise environment due to aircraft activity at the airport now and in the future. Thus, the NEM documentation describes the data collection and analysis undertaken in the development and graphic depictions of existing and future noise exposure resulting from aircraft operations and the land uses in the airport environs. During the process, the airport initiates and maintains contact with airport users and other interested stakeholders to get the various perspectives on the modeling inputs. After considering all stakeholder and public comments, the airport sponsor submits

[3] Part 150 requires cumulative noise exposure be expressed in terms of the Day-Night Average Sound Level (DNL). Due to the State of California Division of Aeronautics adopting the Community Noise Equivalent Level (CNEL) as part of their noise standards, the FAA allows California airports to use CNEL in place of DNL. CNEL and other noise metrics and noise effects are discussed in detail in Appendix A.

the NEM documents to the FAA, and, subsequent to a thorough review, the FAA makes a determination of compliance with the Part 150 standards.

The year of submission for this update is 2015. Therefore, the noise contours for 2015 represent existing conditions and the projected contours for 2020 represent the five-year forecast conditions.

1.2.2 Noise Compatibility Program

The purpose of a Noise Compatibility Program (NCP), according to Part 150, is to provide the airport with a planning process for improving the compatibility of aircraft operations within the airport environment and with neighboring noise-sensitive land uses while continuing to fulfill its role in the National Plan of Integrated Airport Systems (NPIAS). Upon completion of the analyses and coordination, the NCP is submitted to the FAA for review and approval. The FAA approves or disapproves each measure on its merits and adherence to the national aviation policy. Acceptance of the submission and approval of individual measures is a prerequisite to application to the FAA for federal funding assistance under the Airport Improvement Program (AIP).

Again the present document represents only an NEM update. Appendix B provides a review of the existing NCP measures and implementation status of each measure, but does not propose any revisions to the NCP, as previously discussed in Section 1.2.

1.3 Project Location and Setting

The LA/Ontario International Airport is located in San Bernardino County within the City of Ontario approximately two miles east southeast of the Ontario City Hall. It is generally contiguous to commercial and industrial land uses on the north, east and south with predominant residential uses to the west. Primary access to the Airport is provided via two east-west corridors – Interstate 10 on the north side of the Airport and California Highway 60 Freeway on the south side of the Airport. Interstate 10 and Highway 60 intersect with Interstate 15 east of the Airport. Interstate 15 is a north-south corridor providing access to additional distribution centers and cities north and south of the Airport.

The physical parameters of the airport, as required for noise modeling purposes, are discussed in Section 2.1.1. A map of the airport and its surrounding area is presented in the Land Use Base Map, Section 3, Figure 12.

1.4 Brief History of Noise Compatibility Planning at ONT

LAWA (then the Los Angeles Department of Airports), in its role as owner and operator of ONT, completed its first full Part 150 study for the airport in 1990, including both the NEMs and NCP. That study demonstrated LAWA's goal of addressing aircraft noise issues and included 22 strategies, or measures, designed to reduce noise exposure and mitigate incompatible land uses at ONT. The FAA accepted the associated NEMs on April 2, 1991 (Appendix C) and issued a Record of Approval (ROA) on October 7, 1991 approving 12 of the 22 proposed NCP measures (Appendix D). The 12 approved measures included the continuation of nighttime preferential runway use known as contra-flow, the prohibition of maintenance jet engine run-ups at night unless muffled in a hush house, various land use control measures in coordination with local jurisdictions, noise mitigation through acoustical treatment or purchase assurance programs, development of an airport/community noise forum, and development of a computer-based land use/noise monitoring system.

In 1994, LAWA provided additional information on a measure to relocate Bon View Elementary School that was originally disapproved by the FAA in 1991 pending further information. On June 3, 1994 the FAA amended the 1991 ROA to include the relocation of the school (Appendix E).

The existing NCP is discussed further in Appendix B.

1.5 Roles and Responsibilities

Several groups were involved in the development of this 2015 NEMs update, including the Los Angeles World Airports, the Federal Aviation Administration, the City of Ontario Quiet Home Program (QHP) Office, and the consulting team.

1.5.1 Los Angeles World Airports

As the "airport operator", LAWA has authority over the NEM Update study elements and submission to FAA. LAWA retained a team of consultants to conduct the technical work required to fulfill Part 150 analysis and documentation requirements, and to assist in public outreach and consultation. Section 1.5.4 describes the composition of the consulting team and the general assignment of responsibilities among its members.

1.5.2 Federal Aviation Administration

The FAA has the responsibility to review the NEM submission to determine that the technical work, consultation, and documentation comply with Part 150 requirements. Any requests for non-standard modeling procedures must be submitted to the FAA for review and consideration, as was done for this NEM update. Prior to acceptance of the NEMs, the submitted documents will go through FAA Line-of-Business review, which includes Air Traffic, Flight Standards, Legal, Special Programs, Planning & Requirements, Flight Procedures and Regional Review.

In addition to the Lines of Business review, FAA involvement includes participation by staff from the following two organizations in the agency:

The ***Los Angeles Airports District Office (ADO)*** and/or ***Airports-Western-Pacific Region*** evaluates and accepts (or does not accept) the NEM and supporting documentation in accordance with 49 U.S.C. Section 47503 (enabled by the Aviation Safety and Noise Abatement Act of 1979).

FAA headquarters, in particular the ***Airport Planning and Environmental Division (APP-400) and the Office of Environment and Energy Noise Division (AEE-100)*** reviews and approves (or disapproves) of non-standard data inputs to the FAA Integrated Noise Model (INM).

1.5.3 City of Ontario Quiet Home Program Office

The Quiet Home Program (QHP) was established by the City of Ontario following the completion of the 1990 NCP for ONT. Under the direction of the Housing and Municipal Services Department, the QHP administers and implements two noise mitigation activities – residential sound insulation and land acquisition/relocation. The QHP uses the NEM to determine a participant's eligibility and receives funds from both FAA and LAWA to perform these noise mitigation measures within the City of Ontario.

1.5.4 Consulting team

LAWA contracted with the consulting firm of ***Harris Miller Miller & Hanson, Inc. (HMMH)*** to complete the technical work required for the NEM update. Under this agreement, HMMH has overall project management responsibility for the NEM Update, and is responsible for all noise-related technical elements. Other elements of the NEM Update are being handled through sub-consultant agreements with:

ICF International – provided services to derive aircraft activity forecasts for the year of submittal and the five-year forecast.

CommuniQuest – coordinated the public consultation program activities such as providing public outreach and coordination services, facilitation for the ONT NEM Update public workshops, and translation and interpretation services.

1.6 FAA Checklist

The FAA produced Advisory Circular 150/5020, "Airport Noise and Land Use Compatibility Planning", that includes a checklist for FAA's use in reviewing NEM submissions. The FAA prefers that the NEM documentation include a copy of the checklist with appropriate page numbers or other references and other notes and comments to assist in the document's review, as presented in Table 1.

Table 1 – Part 150 Noise Exposure Maps Checklist
Source: FAA/APP, Washington, DC, March 1989; revised June 2005; reviewed for currency 12/2007[4]

PART 150 NOISE EXPOSURE MAPS CHECKLIST-PART I			
Airport Name: LA/Ontario International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
I. Submitting and Identifying the NEM:			
A. Submission properly identified:			
1. 14 C.F.R. Part 150 NEM?	X		Sponsor's Certification (p. iii) and Section 1 (p. 1)
2. NEM and NCP together?		X	Only NEM update
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?	X		Section 1.4 (p. 4)
B. Airport and Airport Operator's name are identified?	X		Sponsor's Certification, p. iii
C. NCP is transmitted by operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?		X	Only NEM update
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	X		Section 4 (p. 59) and Appendix L
B. Identification of consulted parties:			
1. Are the consulted parties identified?	X		Section 4.1.1 (p. 60) and Appendix L
2. Do they include all those required by 150.21(b) and A150.105 (a)?	X		Section 4.1.1 (p. 60)
3. Agencies in 2. above, correspond to those indicated on the NEM?	X		Section 4.1.1 (p. 60)
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	X		Sponsor's Certification (p. iii) and Section 4 (p. 59)
D. Does the document indicate whether written comments were received during consultation and, if there were comments that they are on file with the FAA regional airports division manager?	X		Section 4.3 (p. 62) and Appendix L

[4] http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/

PART 150 NOISE EXPOSURE MAPS CHECKLIST-PART I			
Airport Name: LA/Ontario International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
III. General Requirements: [150.21]			
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	X		Existing Condition 2015 NEM is Figure 13 (p. 49); Forecast Condition 2020 NEM is Figure 14 (p. 51)
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	X		Cover letter; Figure 13 (p. 49) is 2015 Existing Condition NEM
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	X		Cover letter; Section 2.1 (p.11); Figure 14 (p. 51) is 2020 five-year Forecast NEM; Appendix F
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?	N/A		
C. If the NEM and NCP are submitted together:	N/A		
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?	N/A		
2. If the forecast year map is based on program implementation:			
a. Are the specific program measures that are reflected on the map identified?	N/A		
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?	N/A		
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3 (b), 150.35 (f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL? [150.21(d)]	N/A		
IV. MAP SCALE, GRAPHICS, AND DATA REQUIREMENTS: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must be not be less than 1" to 2,000'), and is the scale indicated on the maps? (Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEMs.) (Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale)	X		1" to 2,500' scale of all map figures in main document with 1" to 2,000' scale maps of NEMs and flight tracks included in pocket folders
B. Is the quality of the graphics such that required information is clear and readable? (Refer to C. through G., below, for specific graphic depictions that must be clear and readable)	X		All figures

PART 150 NOISE EXPOSURE MAPS CHECKLIST-PART I			
Airport Name: LA/Ontario International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
C. Depiction of the airport and its environs.			
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps:			Figure 8 (p.33), Representative Sample of Arrival Flight Tracks; Figure 9 (p. 35), Representative Example of Departure Flight Tracks; Figure 13 (p. 49) 2015 Existing Conditions NEM; Figure 14 (p.51) 2020 Forecast Conditions NEM; Figure 15 (p. 53) Comparison of 2015 and 2020 NEMs
a. Airport boundaries	X		
b. Runway configurations with runway end numbers	X		
2. Does the depiction of the off-airport data include?			
a. A land use base map depicting streets and other identifiable geographic features	X		Figure 8 (p.33), Representative Sample of Arrival Flight Tracks; Figure 9 (p. 35), Representative Example of Departure Flight Tracks; Figure 13 (p. 49) 2015 Existing Conditions NEM; Figure 14 (p.51) 2020 Forecast Conditions NEM; Figure 15 (p. 53) Comparison of 2015 and 2020 NEMs
b. The area within the DNL 65 dB (or beyond, at local discretion)	X		
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion)	X		
D. 1. Continuous contours for at least DNL 65, 70, and 75 dB?	X		All contour figures
2. Has the local land use jurisdiction(s) adopted a lower local standard and, if so, has the sponsor depicted this on the NEMs?		X	
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	X		Sponsor's Certification (p. iii) and Section 2.1.2 (p. 15) presents existing and forecast operational data
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	X		Figures 8 through 11 (p. 33-39) show a representation of modeled arrival and departure flight tracks and density plots of all modeled tracks
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEMs)	X		Figure 8 (p.33), Representative Sample of Arrival Flight Tracks; Figure 9 (p. 35), Representative Example of Departure Flight Tracks; Figure 13 (p. 49) 2015 Existing Conditions NEM; Figure 14 (p.51) 2020 Forecast Conditions NEM; Figure 15 (p. 53) Comparison of 2015 and 2020 NEMs
G. Noncompatible land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the map graphics?	X		Depicted on Figure 13 (p. 49) 2015 Existing Conditions and Figure 14 (p. 51) 2020 Forecast Conditions NEMs Section 3.2 (p. 55) and Table 16 (p. 56) through Table 18 (p. 57)
2. Are noise sensitive public buildings and historic properties identified? (Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.)	X		
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	X		

PART 150 NOISE EXPOSURE MAPS CHECKLIST-PART I			
Airport Name: LA/Ontario International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	N/A		
V. NARRATIVE SUPPORT OF MAP DATA: [150.21(a), A150.1, A150.101, A150.103]			
A. 1. Are the technical data and data sources on which the NEMs are based adequately described in the narrative?	X		Section 2.1 (p. 11) presents aircraft operations data and other modeling inputs; Appendices F and G
2. Are the underlying technical data and planning assumptions reasonable?	X		
B. Calculation of Noise Contours:			
1. Is the methodology indicated?	X		Section 2 (p. 11) and Appendix J; INM 7.0d
a. Is it FAA approved?	X		Section 2 (p. 11) and Appendix J; INM 7.0d
b. Was the same model used for both maps? (Note: The same model also must be used for NCP submittals associates with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.)	X		
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?	N/A		
2. Correct use of noise models:			
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?	X		Letter requesting FAA approval for aircraft substitutions and use of RealContours See Appendices H and J
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?	X		Letter of FAA response for aircraft substitutions and use of RealContours See Appendices I and K
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	N/A		
4. For noise contours below DNL 65 dB, does the supporting documentation include an explanation of local reasons? (Note: A narrative explanation, including evidence the local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), and including a table or other depiction of the differences from the Federal table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures within the locally significant noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.)	N/A		

PART 150 NOISE EXPOSURE MAPS CHECKLIST-PART I			
Airport Name: LA/Ontario International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) for both the existing condition and forecast year maps?	X		Table 16 (p. 56), Section 3.2.2 (p. 55)
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	X		Section 2.2.2 (p. 42)
a. If a local variation to table 1 was used:			
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?	N/A		
(2) Does the narrative include the airport operator's complete substitution for table 1?	N/A		
3. Does the narrative include information on self-generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?	N/A		
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?	N/A		
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect land use compatibility in the future?	X		Section 3.2 (p. 55)
VI. MAP CERTIFICATIONS: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	X		Sponsor's Certification (p. iii)
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. Section 1001?	X		

2 DEVELOPMENT OF NOISE EXPOSURE MAPS

Noise Exposure Maps include two major elements: (1) aircraft noise exposure contours and (2) land use base map on which to display the contours. Developing the contours for the Noise Exposure Maps requires the use of an FAA approved methodology or computer program, which for this project is Version 7.0d of the Integrated Noise Model (INM). The INM combines acoustic and flight performance modeling capabilities to evaluate aircraft noise impacts in the vicinity of airports. Section 2.1 provides the various data input requirements for modeling the noise exposure contours.

INM Version 7.0d was used to complete this NEM document prior to the FAA's public release of the Aviation Environmental Design Tool (AEDT) on May 29, 2015. At the time of the ONT NEM analyses, INM 7.0d was the most current FAA-approved, industry-accepted model for determining the total effect of aircraft noise exposure at and around airports. The AEDT model has replaced the INM for modeling of aircraft related noise and emissions.

The INM 7.0d aircraft database contains representative data for commercial, general aviation, and military aircraft powered by turbojet, turbofan, or propeller-driven engines. For each aircraft in the database, the following information is provided: (1) a set of departure profiles for each applicable trip length, (2) a set of approach parameters, and (3) SEL versus distance curves for several thrust settings. The INM uses runway and flight track information, operations levels distributed by time of day, aircraft fleet mix, and aircraft profiles as inputs. This information is needed to develop noise exposure contours. The INM calculates noise exposure levels at a series of "noise grids", and produces noise exposure contours based on the grid results, for a variety of noise metrics including CNEL, DNL, L_{max}, L_{eq}, and SEL. For the purposes of 14 CFR Part 150 NEMs, the FAA requires the use of DNL or CNEL.

To assess the land use compatibility within the noise exposure contours, a land use base map is required that includes the airport and its surrounding area with each parcel identified by its land use category, e.g., residential, commercial, or public use. Section 2.2 provides the background information on the development of the land use base map for ONT (Figure 12), which will be used to display the noise exposure contours generated by the noise modeling.

ONT has an Airport Noise and Operations Management System (ANOMS) with noise monitors located in various locations around the airport. These locations are shown on the flight track and noise exposure map graphics for reference. Data from these monitors were not used in the development of the noise exposure maps since the data are historical and do not reflect the noise levels associated with the operations for 2015 and 2020.

2.1 Noise Modeling Inputs

There are several elements that need to be defined or derived for input to the modeling process. The INM requires inputs in the following categories:

- Physical description of the airport layout
- Number and mix of aircraft flight operations
- Aircraft noise and performance characteristics
- Runway utilization rates
- Prototypical flight track descriptions and accompanying utilization rates
- Meteorological data
- Terrain data

The model was used without any unauthorized "calibration" or "adjustment." Contour input was developed using RealContours™, a proprietary program that provides greater detail to the modeling process by improving the precision of modeling individual aircraft flight tracks and is further described in Section 2.1.5.[5]

Sections 2.1.1 through 2.1.7 present this information (in the order listed above) for the noise contours presented in Section 3.

2.1.1 Airport Physical Parameters

ONT is located within San Bernardino County and the City of Ontario south of Interstate 10, north of California Highway 60 and west of Interstate 15. The Airport has two parallel runways: Runway 8L/26R and Runway 8R/26L. Figure 1 shows the Airport Diagram and Table 2 provides the runway specifications required for modeling.

Each end of the runways is designated by a number that, with the addition of a trailing "0", reflects the magnetic heading of the runway to the nearest 10 degrees, as seen by the pilot. The two parallel runways, 8L-26R and 8R-26L, are oriented on approximate magnetic headings of 080º and 260º and are 12,197 feet long by 150 feet wide and 10,200 feet long by 150 feet wide, respectively. The parallel runways are distinguished from each other with letter endings "L", meaning left, and "R", meaning right, as seen by the pilot.

Runway length, runway width, instrumentation and declared distances[6] may affect which aircraft might use a particular runway and under what conditions, and therefore how often a runway would be used relative to the other runways at the airport.

Helicopter operations depart and arrive from the proximity of the intersection of Taxiways K, P, and S (H01) as indicated by discussions with the FAA Air Traffic Control and the Fixed Base Operators, as well as review of the aircraft radar data.

A Runway 8L/26R - Runway Safety Area improvement project was completed in October 2014. This project involved re-grading portions of Runway 8L/26R's RSA, relocating portions of service roads at perimeter service area gates, extending the concrete cover of the West Cucamonga Channel, and re-aligning perimeter fencing in the impacted areas. The project did not affect aircraft operations. No other changes to the airfield are expected within the 5-year time frame for this project.

[5] RealContours™ converts aircraft flight track data into Federal Aviation Administration's Integrated Noise Model (INM) input data, runs the INM, and provides the INM results based on the modeling of each individual flight track.
[6] "Declared distances represent the maximum distances available and suitable for meeting takeoff, rejected takeoff, and landing distances performance requirements for turbine powered aircraft.", FAA Advisory Circular 150/5300-13A, Section 322, September 28, 2012.

Figure 1 – Existing ONT Airport Layout
Source: FAA, digital Terminal Procedures, effective December 11, 2014 to January 8, 2015

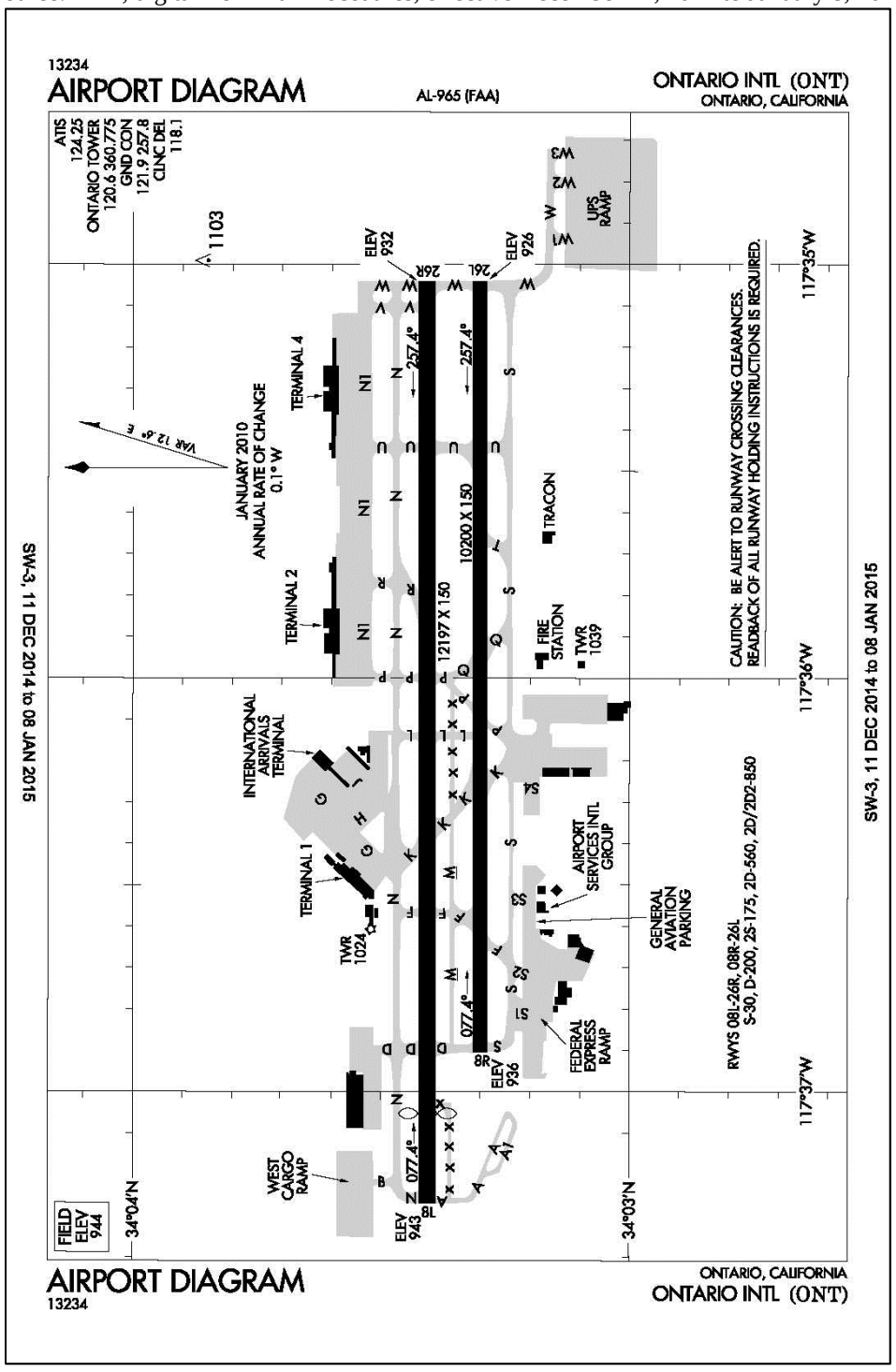


Table 2 – Runway Details
Source: FAA Form 5010

Runway	Latitude (dd-mm-ss)	Longitude (dd-mm-ss)	Latitude (degrees)	Longitude (degrees)	Elevation (ft, MSL)	Displaced Threshold (feet)	Glide Slope (degrees)	Threshold Crossing Height (feet)	Magnetic Orientation (degrees)*
8L	34°-03'-24.7542"N	117°-37'-22.1464"W	34.056876N	117.622818W	943	997	3	62	077
26R	34°-03'-24.8152"N	117°-34'-57.1903"W	34.056893N	117.582553W	932	0	3	75	257
8R	34°-03'-17.8467"N	117°-36'-58.4095"W	34.054957N	117.616225W	936	0	3	65	077
26L	34°-03'-17.8904"N	117°-34'-57.1886"W	34.054970N	117.582552W	926	0	3	74	257
H01	34°-03'-11.7648"N	117°-36'-11.7360"W	34.053268N	117.603260W	914	0	9.7	N/A	N/A

Notes:
http://www.faa.gov/airports/airport_safety/airportdata_5010/menu/index.cfm accessed 9/2/2014
**Magnetic Orientation from the FAA's Airport Diagram, rounded to the nearest degree, current 12/11/2014 to 1/8/2015.*

2.1.2 Airport Operations

Part 150 and its table of noise/land use compatibility guidelines require the calculation of "yearly Day-Night Average Sound Levels (DNL)" values.[7] In California, the Community Noise Equivalent Level, or CNEL, is the recognized noise metric that is allowed to replace DNL for the preparation of NEM contours[8]. The INM produces these values of exposure utilizing an "average annual day" of airport operations. The annual average day operations are determined by dividing the annual operations by 365 days (or 366 days in 2020, a leap year). In this NEM Update, the last full calendar year (2013) of ONT aircraft activity was used as the baseline operations and aircraft fleet mix. Section 2.1.2.1 provides information on the development of the forecast aircraft operations for the year of submittal (2015) and five-year forecast (2020). The 2013 flight operations were also used to determine the general flight range of the various operations by reviewing city-pairs of flights departing ONT.[9] This flight range is used following guidelines in the FAA's INM to assign a "stage length", which provides an estimate of aircraft weight on departure.[10] These stage lengths were used in the 2015 and 2020 forecasts unless additional future data indicated a change in city-pairs.

2.1.2.1 Development of aircraft operations

The 2015 operations and fleet mix information were developed from several sources. Operations were obtained from the Airport Noise and Operations Management System (ANOMS) flight tracking data, for calendar year 2013 (January 1, 2013 through December 31, 2013). These 12 months of data were then adjusted to represent annual 2015 operations, as discussed below. Information analyzed during the preparation of these forecasts includes USDOT T100 data, OAG passenger schedules, FAA Tower Counts, FAA ASDI information (via FlightAware.com), FAA ETMSC data, and industry forecasts prepared by Airbus, Boeing and the FAA.[11,12,13,14]

The forecasts looked at aircraft operations trends over the period from 1990 through 2013 and the five-year change in passenger and cargo flight operations from 2008 to 2013.[15] In addition, a comparison of the monthly aircraft operations for years 2012, 2013, and the first five months of 2014 indicated there was

[7] Day-Night Average Sound Level or DNL is a 24-hour average sound level that accounts for greater sensitivity to noise at night. See Appendix A for how it is developed..
[8] Paragraph B-1 of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and Paragraph 9(n) of FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions.*
[9] The FAA's Integrated Noise Model (INM) uses city pairs, which are the origin and destination cities of the ONT aircraft operations, to estimate aircraft weight on departure.
[10] Stage length is the category of distance as determined by the city pairs, which is used in the FAA's Integrated Noise Model (INM) as a surrogate for aircraft weight on departure.
[11] USDOT T100 – United States Department of TransportationT100 information used for this project contains domestic non-stop aircraft data reported by U.S. air carriers that includes airline, origin, destination, departures performed and aircraft type for passengers and freight transported.
[12] OAG - Official Airline Guide is an aviation information business that publishes a well-known database of airline schedules
[13] ASDI - Aircraft Situation Display for Industry data includes the near real time position and other relevant flight data for every civil IFR aircraft receiving radar services with the military and sensitive operations removed. FlightAware is a business providing on-line access to current and historical ASDI information including departures and arrivals at US airports.
[14] ETMSC - Enhanced Traffic Management System Counts is designed to provide information on traffic counts by airport or by city pair for various data groupings such as aircraft type or by hour of the day. ETMSC source data are created when pilots file flight plans and/or when flights are detected by the National Airspace System. ETMSC records are assembled by the FAA Air Traffic Airspace (ATA) Lab by combining electronic messages transmitted to the En Route computer for each flight into a complete record of that flight.
[15] Appendix F, "Forecasts of Aircraft Operations at ONT-2015 and 2020", July 17, 2014.

neither a continued decline nor a substantial increase in aircraft operations at ONT. Therefore, the 2015 forecast of ONT aircraft operations, shown by aircraft category in Table 3, reflects this same current trend and incorporates the views of interviewed airport staff, Airport Traffic Control Tower personnel, and airport operators (e.g., Federal Express, United Parcel Service, Fixed-Base Operators) that the recovery operations to levels prior to the economic downturn in 2008 would be gradual. The five-year forecast of aircraft operations (2020) shown in Table 3 focuses on changes in levels of passenger and cargo aviation activity to include changes in the aircraft fleet mix (e.g., phase-out of MD-80 series aircraft by American Airlines and MD-10/DC10 aircraft by Federal Express Airlines). From 2015 to 2020 the passenger aircraft operations are expected to increase over 17% while the all-cargo aircraft operations are estimated to increase approximately 6%. The forecast for the General Aviation type aircraft is forecast to increase approximately 6% from 2015 to 2020 and include the phase-out of the noisier FAA Part 36 Stage 2 corporate jets under 75,000 pounds gross weight at the end of 2015[16]. A comparison of the resulting forecasts for 2015 and 2020 with the FAA Terminal Area Forecast (TAF) data for 2013 shows the NEM forecasts to be in line with the TAF with the forecasts being approximately 1% greater than the TAF levels.

These forecast operations levels were submitted to the FAA for approval on July 23, 2014.[17] FAA approved the forecasts on August 28, 2014.[18]

Table 3 shows the aircraft operations for 2015 and the expected growth to operations in 2020.

Table 3 – Forecast of Aircraft Operations – 2015 to 2020
Source: ICFI Analysis

Aircraft Category	2015 Operations[1]	2020 Operations	Average Annual Growth Rate
Passenger	45,469	53,436	3.3%
Cargo Jet	11,576	12,444	1.5%
Cargo Feeder	8,969	8,993	0.1%
General Aviation	16,050	17,033	1.2%
Total	**82,063**	**91,906**	**2.3%**
Notes: *(1) Totals may not add up due to rounding*			

Table 5 and Table 6 list the detailed modeled annual average day aircraft operations by INM aircraft type for the 2015 case and Table 8 and Table 9 list the modeled operations for the 2020 case.

2.1.2.2 Aircraft operations in 2015

This section presents the detailed average daily aircraft activity summaries developed for calendar year 2015 as described in the previous section. Table 4 shows the annual and annual average day operations by aircraft category. Table 5 shows the number of average annual daily aircraft arrivals and departures, as well as whether they occur during the day (7:00 am to 7:00 pm), evening (7:00 pm to 10:00 pm), or night (10:00 pm to 7:00 am) time period. The day/evening/night breakdown is critical to the calculation of CNEL because the metric weights evening operations by a factor of 3 and night operations by a factor of 10 (mathematically equivalent to adding 4.77 decibels to evening noise levels and 10 decibels to night

[16] Federal Register Document Number 2013-15843, FR Volume 78, Number 127, pp. 39576-39583, July 2, 2013.
[17] "Review and Approval of LA/Ontario International Airport Part 150 Noise Exposure Map Update Forecast, Los Angeles World Airports, July 23, 2014.
[18] "Ontario International Airport (ONT) Airport Part 150 Noise Exposure Map Update Forecast Approval", FAA LA-ADO, August 28, 2014.

noise levels produced by aircraft). The aircraft are designated by the INM type with which they were modeled. Table 6 shows the local aircraft operations modeled as traffic patterns, such as touch-and-go operations, following a similar breakout.

Table 4 – 2015 Operations Summary
Source: ICFI, HMMH

Category	Number of Forecast Annual Operations[1]	Number of Daily Average Operations Modeled
Passenger	45,469	124.5714
Cargo Jet	11,576	31.7144
Cargo Feeder	8,969	24.5714
General Aviation/Military	16,050	43.9724
Total	**82,063**	**224.8296**
Notes: *(1) Totals may not add up due to rounding*		

Table 5– Modeled Average Daily Aircraft Operations for 2015
Source: ANOMS, ICFI, HMMH

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
Passenger	737300	7.7143	2.8571	0.8571	7.1429	3.5714	0.7143	**22.8571**
	737400	1.4286	0.0000	0.7143	1.4286	0.0000	0.7143	**4.2857**
	737700	12.5714	3.0000	3.0000	14.8571	0.8571	2.8571	**37.1429**
	737800	0.1429	0.2857	2.4286	0.2857	0.0000	2.5714	**5.7143**
	A319-131	3.4286	0.1429	1.5714	2.7143	0.8571	1.5714	**10.2857**
	A320-211	0.3700	0.3171	0.3700	0.3171	0.3700	0.3700	**2.1143**
	A320-232	0.6300	0.5400	0.6300	0.5400	0.6300	0.6300	**3.6000**
	CL601	4.0000	1.1429	1.8571	4.0000	1.0000	2.0000	**14.0000**
	CRJ9-ER	4.4286	0.8571	2.0000	4.2857	1.0000	2.0000	**14.5714**
	MD82	2.0000	1.0000	1.0000	3.0000	0.0000	1.0000	**8.0000**
	MD83	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	**2.0000**
Passenger Subtotal		**37.7143**	**10.1429**	**14.4286**	**39.5714**	**8.2857**	**14.4286**	**124.5714**
Cargo Jet	727EM2	0.1429	0.0000	0.0000	0.0000	0.0000	0.1429	**0.2857**
	747400	0.0000	0.0000	0.7143	0.0000	0.0000	0.7143	**1.4286**
	757PW	0.3357	0.0771	0.2314	0.1443	0.2314	0.2686	**1.2886**
	757RR	0.3786	0.3514	1.0543	0.4271	1.0543	0.3029	**3.5686**
	767300	1.2857	1.1429	1.8571	0.0000	0.7143	3.5714	**8.5714**
	A300-622R	0.0000	0.5714	1.7143	0.0000	0.0000	2.2857	**4.5714**
	DC1010	0.4400	0.0000	0.0000	0.0000	0.4400	0.0000	**0.8800**
	DC1030	0.1314	0.0000	0.0000	0.0000	0.1314	0.0000	**0.2629**
	MD11GE	1.3029	0.2071	0.6643	0.0000	0.6643	1.5100	**4.3486**
	MD11PW	1.9829	0.5071	0.7643	0.0000	0.7643	2.4900	**6.5086**
Cargo Jet Subtotal		**6.0001**	**2.8570**	**7.0000**	**0.5714**	**4.0000**	**11.2858**	**31.7144**
Cargo Feeder	1900D	0.7143	0.0000	0.0000	0.7143	0.0000	0.0000	**1.4286**
	CNA208	6.4286	0.0000	0.0000	4.0000	0.0000	2.4286	**12.8571**
	CNA441	1.0000	1.4286	0.0000	0.4286	0.0000	2.0000	**4.8571**
	DHC6	1.1429	0.8571	0.0000	0.5714	0.7143	0.7143	**4.0000**
	DHC8	0.7143	0.0000	0.0000	0.7143	0.0000	0.0000	**1.4286**
Cargo Feeder Subtotal		**10.0001**	**2.2857**	**0.0000**	**6.4286**	**0.7143**	**5.1429**	**24.5714**

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
General Aviation/ Military Itinerant	727EM2	0.0133	0.0000	0.0033	0.0066	0.0000	0.0099	**0.0332**
	737500	0.0066	0.0000	0.0000	0.0066	0.0000	0.0000	**0.0133**
	737700	0.0497	0.0199	0.0033	0.0365	0.0265	0.0099	**0.1459**
	737800	0.0066	0.0000	0.0000	0.0066	0.0000	0.0000	**0.0133**
	757PW	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	A109	0.0133	0.0033	0.0000	0.0166	0.0000	0.0000	**0.0332**
	B429	0.0133	0.0033	0.0033	0.0099	0.0033	0.0066	**0.0398**
	BEC58P	0.4840	0.0796	0.0431	0.5006	0.0663	0.0398	**1.2133**
	C130HP	0.0199	0.0033	0.0762	0.0464	0.0431	0.0099	**0.1989**
	C17	0.0033	0.0000	0.0033	0.0033	0.0000	0.0033	**0.0133**
	CIT3	0.0961	0.0232	0.0000	0.1127	0.0033	0.0033	**0.2387**
	CL600	0.5536	0.0995	0.0332	0.6100	0.0365	0.0398	**1.3724**
	CL601	0.1691	0.0099	0.0000	0.1757	0.0033	0.0000	**0.3580**
	CNA172	0.8652	0.3746	0.0928	0.8387	0.3481	0.1459	**2.6653**
	CNA182	0.1757	0.0099	0.0066	0.1691	0.0133	0.0099	**0.3845**
	CNA206	0.7161	0.0199	0.0033	0.6597	0.0332	0.0464	**1.4785**
	CNA208	1.2962	0.2752	0.1326	1.4852	0.0564	0.1624	**3.4079**
	CNA441	0.7293	0.0597	0.0530	0.6862	0.0762	0.0796	**1.6841**
	CNA500	0.2553	0.0199	0.0265	0.2586	0.0332	0.0099	**0.6033**
	CNA510	0.0762	0.0033	0.0000	0.0762	0.0000	0.0033	**0.1591**
	CNA525C	0.3680	0.0530	0.0365	0.3845	0.0431	0.0298	**0.9150**
	CNA55B	0.3149	0.0597	0.0265	0.2785	0.0199	0.1028	**0.8022**
	CNA560E	0.0133	0.0000	0.0000	0.0133	0.0000	0.0000	**0.0265**
	CNA560XL	0.1127	0.0099	0.0033	0.1061	0.0099	0.0099	**0.2519**
	CNA680	0.0796	0.0066	0.0000	0.0696	0.0133	0.0033	**0.1724**
	CNA750	0.0762	0.0066	0.0000	0.0796	0.0033	0.0000	**0.1658**
	COMSEP	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	CRJ9-ER	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	DHC6	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	DO228	0.0663	0.0066	0.0066	0.0630	0.0066	0.0099	**0.1591**
	EC130	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	ECLIPSE500	0.0431	0.0033	0.0000	0.0464	0.0000	0.0000	**0.0928**
	EMB145	0.0232	0.0033	0.0000	0.0265	0.0000	0.0000	**0.0530**
	EMB14L	0.0066	0.0000	0.0000	0.0066	0.0000	0.0000	**0.0133**
	F10062	0.1691	0.0099	0.0099	0.1790	0.0000	0.0099	**0.3779**
	FAL20	0.1127	0.0464	0.0166	0.1558	0.0166	0.0033	**0.3514**
	GASEPF	0.0696	0.0232	0.0000	0.0663	0.0199	0.0066	**0.1856**
	GASEPV	2.2874	0.1989	0.0729	2.2509	0.2155	0.0928	**5.1185**
	GII	0.0133	0.0199	0.0000	0.0232	0.0000	0.0099	**0.0663**
	GIIB	0.1757	0.0332	0.0431	0.1558	0.0265	0.0696	**0.5039**
	GIV	0.2984	0.0365	0.0133	0.2785	0.0530	0.0166	**0.6962**
	GV	0.2022	0.0166	0.0033	0.1923	0.0199	0.0099	**0.4442**
	HS748A	0.0298	0.0133	0.0066	0.0431	0.0066	0.0000	**0.0995**
	IA1125	0.2387	0.0365	0.0332	0.2387	0.0199	0.0497	**0.6166**
	KC135R	0.0199	0.0033	0.0000	0.0232	0.0000	0.0000	**0.0464**
	L1011	0.0066	0.0000	0.0000	0.0066	0.0000	0.0000	**0.0133**

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
	LEAR25	0.0232	0.0099	0.0033	0.0298	0.0066	0.0000	**0.0729**
	LEAR35	1.1470	0.1923	0.0895	1.2465	0.0464	0.1359	**2.8576**
	MU3001	0.1856	0.0099	0.0166	0.1823	0.0099	0.0199	**0.4243**
	PA28	0.2685	0.0663	0.0199	0.2619	0.0630	0.0298	**0.7094**
	PA31	0.0199	0.0000	0.0000	0.0199	0.0000	0.0000	**0.0398**
	PA42	0.1856	0.0464	0.0332	0.2221	0.0099	0.0332	**0.5304**
	S70	0.0166	0.0099	0.0000	0.0166	0.0099	0.0000	**0.0530**
	S76	0.0000	0.0066	0.0000	0.0066	0.0000	0.0000	**0.0133**
	SA350D	1.0012	0.1028	0.0663	0.9813	0.1094	0.0796	**2.3404**
	SD330	0.0033	0.0000	0.0000	0.0033	0.0000	0.0000	**0.0066**
	T-38A	0.0000	0.0033	0.0000	0.0000	0.0033	0.0000	**0.0066**
General Aviation/ Military Itinerant Subtotal		**13.1376**	**2.0388**	**0.9813**	**13.3796**	**1.4752**	**1.3028**	**32.3153**
Total		**66.8519**	**17.3245**	**22.4098**	**59.9510**	**14.4752**	**32.1600**	**213.1724**
Note: Totals may not match exactly due to rounding.								

Table 6 – Modeled Average Daily Aircraft Local Operations for 2015
Source: ANOMS, ICFI, HMMH

Aircraft Category	INM Aircraft Type	Annual Average Day Patterns				
		Local Patterns				Total Operations
		Day	Evening	Night	Total	
General Aviation Local	A109	0.0131	0.0015	0.0000	0.0145	**0.0290**
	B429	0.0102	0.0029	0.0044	0.0174	**0.0348**
	BEC58P	0.4313	0.0639	0.0363	0.5315	**1.0629**
	CNA172	0.7464	0.3165	0.1045	1.1675	**2.3349**
	CNA182	0.1510	0.0102	0.0073	0.1684	**0.3369**
	CNA206	0.5997	0.0232	0.0218	0.6447	**1.2894**
	GASEPF	0.0436	0.0029	0.0029	0.0494	**0.0987**
	GASEPV	1.6481	0.1525	0.0523	1.8528	**3.7056**
	PA28	0.2323	0.0566	0.0218	0.3107	**0.6215**
	PA31	0.0174	0.0000	0.0000	0.0174	**0.0348**
	S70	0.0145	0.0087	0.0000	0.0232	**0.0465**
	S76	0.0029	0.0029	0.0000	0.0058	**0.0116**
	SA350D	0.8683	0.0929	0.0639	1.0252	**2.0503**
General Aviation Local Total		**4.7787**	**0.7347**	**0.3151**	**5.8285**	**11.6571**
Notes: Each local pattern consists of two operations – an arrival and a departure. *Totals may not match exactly due to rounding*						

2.1.2.3 Aircraft operations in 2020

A five-year forecast of operations was prepared using procedures similar to those for 2015. The operations and category groupings were adjusted to reflect anticipated changes to the fleet mix that are expected to occur during the forecast period.

Appendix F presents a forecast document prepared for this NEM Update. On August 28, 2014 the FAA approved the forecast (see Appendix G). Table 7 presents the 2020 operations forecast and the associated daily average modeled operations. The five-year forecast projects 91,906 total operations in 2020 with estimated growth in all aircraft operation categories. No change in the level of military flight activity is anticipated.

Table 7 – 2020 Operations Summary
Source: ICFI, HMMH

Category	Number of Forecast Annual Operations	Number of Daily Average Operations Modeled
Passenger	53,436	146.0000
Cargo Jet	12,444	34.0000
Cargo Feeder	8,993	24.5714
General Aviation/Military	17,033	46.5369
Total	**91,906**	**251.1083**
Notes: *(1) Totals may not add up due to rounding*		

Table 8 shows the number of annual average daily aircraft arrivals and departures, as well as whether they occur during the day, evening, or night time period. Table 9 shows the local aircraft operations modeled as traffic patterns, such as touch-and-go operations, following a similar breakout.

Table 8 – Modeled Average Daily Aircraft Operations for 2020
Source: ANOMS, ICFI, HMMH

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
Passenger	737300	7.5714	2.8571	0.8571	7.0000	3.5714	0.7143	**22.5714**
	737700	17.5714	3.0000	1.8571	19.0000	0.8571	2.5714	**44.8571**
	737800	6.8571	1.2857	4.7143	8.0000	0.0000	4.8571	**25.7143**
	A319-131	3.4286	0.1429	1.7143	2.7143	0.8571	1.7143	**10.5714**
	A320-211	0.3700	0.3171	0.3700	0.3171	0.3700	0.3700	**2.1143**
	A320-232	0.6300	0.5400	0.6300	0.5400	0.6300	0.6300	**3.6000**
	CL601	6.0000	1.1429	1.8571	6.0000	1.0000	2.0000	**18.0000**
	CRJ9-ER	6.4286	0.8571	2.0000	5.2857	1.0000	3.0000	**18.5714**
Passenger Subtotal		**48.8571**	**10.1429**	**14.0000**	**48.8571**	**8.2857**	**15.8571**	**146.0000**
Cargo Jet	727EM2	0.1429	0.0000	0.0000	0.0000	0.0000	0.1429	**0.2858**
	747400	0.0000	0.0000	0.7143	0.0000	0.0000	0.7143	**1.4286**
	757PW	0.3357	0.0771	0.2314	0.1443	0.2314	0.2686	**1.2885**
	757RR	0.3786	0.3514	1.0543	0.4271	1.0543	0.3029	**3.5686**
	767300	2.1429	1.1429	1.8571	0.0000	1.2857	3.8571	**10.2857**
	A300-622R	0.0000	0.5714	1.7143	0.0000	0.0000	2.2857	**4.5714**
	MD11GE	1.4686	0.2900	0.6643	0.0000	0.7471	1.6757	**4.8457**
	MD11PW	2.3886	0.7100	0.7643	0.0000	0.9671	2.8957	**7.7257**
Cargo Jet Subtotal		**6.8573**	**3.1428**	**7.0000**	**0.5714**	**4.2856**	**12.1429**	**34.0000**

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
Cargo Feeder	1900D	0.7143	0.0000	0.0000	0.7143	0.0000	0.0000	**1.4286**
	CNA208	6.4286	0.0000	0.0000	4.0000	0.0000	2.4286	**12.8571**
	CNA441	1.0000	1.4286	0.0000	0.4286	0.0000	2.0000	**4.8571**
	DHC6	1.1429	0.8571	0.0000	0.5714	0.7143	0.7143	**4.0000**
	DHC8	0.7143	0.0000	0.0000	0.7143	0.0000	0.0000	**1.4286**
Cargo Feeder Subtotal		**10.0001**	**2.2857**	**0.0000**	**6.4286**	**0.7143**	**5.1429**	**24.5714**
General Aviation/ Military Itinerant	727EM2	0.0144	0.0000	0.0036	0.0072	0.0000	0.0108	**0.0361**
	737500	0.0072	0.0000	0.0000	0.0072	0.0000	0.0000	**0.0144**
	737700	0.0541	0.0216	0.0036	0.0397	0.0289	0.0108	**0.1587**
	737800	0.0072	0.0000	0.0000	0.0072	0.0000	0.0000	**0.0144**
	757PW	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	A109	0.0144	0.0036	0.0000	0.0180	0.0000	0.0000	**0.0361**
	B429	0.0144	0.0036	0.0036	0.0108	0.0036	0.0072	**0.0433**
	BEC58P	0.5266	0.0866	0.0469	0.5410	0.0757	0.0433	**1.3200**
	C130HP	0.0216	0.0036	0.0830	0.0505	0.0469	0.0108	**0.2164**
	C17	0.0036	0.0000	0.0036	0.0036	0.0000	0.0036	**0.0144**
	CIT3	0.1046	0.0252	0.0000	0.1226	0.0036	0.0036	**0.2597**
	CL600	0.6023	0.1082	0.0361	0.6636	0.0397	0.0433	**1.4931**
	CL601	0.1839	0.0108	0.0000	0.1911	0.0036	0.0000	**0.3895**
	CNA172	0.9413	0.4075	0.1010	0.9125	0.3787	0.1587	**2.8997**
	CNA182	0.1911	0.0108	0.0072	0.1839	0.0144	0.0108	**0.4184**
	CNA206	0.7754	0.0252	0.0036	0.7213	0.0397	0.0433	**1.6085**
	CNA208	1.4102	0.2993	0.1443	1.6157	0.0613	0.1767	**3.7075**
	CNA441	0.7934	0.0649	0.0577	0.7502	0.0793	0.0866	**1.8321**
	CNA500	0.2777	0.0216	0.0289	0.2813	0.0361	0.0108	**0.6564**
	CNA510	0.0830	0.0036	0.0000	0.0830	0.0000	0.0036	**0.1731**
	CNA525C	0.4003	0.0577	0.0397	0.4184	0.0469	0.0325	**0.9954**
	CNA55B	0.3426	0.0649	0.0289	0.3030	0.0216	0.1118	**0.8728**
	CNA560E	0.0144	0.0000	0.0000	0.0144	0.0000	0.0000	**0.0289**
	CNA560XL	0.1226	0.0108	0.0036	0.1154	0.0108	0.0108	**0.2741**
	CNA680	0.0866	0.0072	0.0000	0.0757	0.0144	0.0036	**0.1875**
	CNA750	0.0830	0.0072	0.0000	0.0866	0.0036	0.0000	**0.1803**
	COMSEP	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	CRJ9-ER	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	DHC6	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	DO228	0.0721	0.0072	0.0072	0.0685	0.0072	0.0108	**0.1731**
	EC130	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	ECLIPSE500	0.0469	0.0036	0.0000	0.0505	0.0000	0.0000	**0.1010**
	EMB145	0.0252	0.0036	0.0000	0.0289	0.0000	0.0000	**0.0577**
	EMB14L	0.0072	0.0000	0.0000	0.0072	0.0000	0.0000	**0.0144**
	F10062	0.1839	0.0108	0.0108	0.1948	0.0000	0.0108	**0.4111**
	GASEPF	0.0757	0.0252	0.0000	0.0721	0.0216	0.0072	**0.2020**
	GASEPV	2.4921	0.2128	0.0793	2.4525	0.2308	0.1010	**5.5685**
	GIV	0.3246	0.0397	0.0144	0.3030	0.0577	0.0180	**0.7574**
	GV	0.2200	0.0180	0.0036	0.2092	0.0216	0.0108	**0.4833**
	HS748A	0.0216	0.0000	0.0000	0.0216	0.0000	0.0000	**0.0433**

Aircraft Category	INM Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
	IA1125	0.2597	0.0397	0.0361	0.2597	0.0216	0.0541	**0.6708**
	KC135R	0.0216	0.0036	0.0000	0.0252	0.0000	0.0000	**0.0505**
	L1011	0.0072	0.0000	0.0000	0.0072	0.0000	0.0000	**0.0144**
	LEAR35	1.3561	0.2597	0.1154	1.5111	0.0685	0.1515	**3.4623**
	MU3001	0.2020	0.0108	0.0180	0.1984	0.0108	0.0216	**0.4616**
	PA28	0.2921	0.0721	0.0216	0.2849	0.0685	0.0325	**0.7718**
	PA31	0.0216	0.0000	0.0000	0.0144	0.0000	0.0072	**0.0433**
	PA42	0.2020	0.0505	0.0361	0.2416	0.0108	0.0361	**0.5770**
	S70	0.0180	0.0108	0.0000	0.0180	0.0108	0.0000	**0.0577**
	S76	0.0000	0.0072	0.0000	0.0072	0.0000	0.0000	**0.0144**
	SA350D	1.0892	0.1118	0.0721	1.0675	0.1190	0.0866	**2.5462**
	SD330	0.0036	0.0000	0.0000	0.0036	0.0000	0.0000	**0.0072**
	T-38A	0.0000	0.0036	0.0000	0.0000	0.0036	0.0000	**0.0072**
General Aviation/ Military Itinerant Subtotal		**14.0367**	**2.1351**	**1.0098**	**14.2892**	**1.5616**	**1.3308**	**34.3633**
Total		**79.7512**	**17.7065**	**22.0098**	**70.1463**	**14.8472**	**34.4737**	**238.9347**
Note: Totals may not match exactly due to rounding.								

Table 9 – Modeled Average Daily Aircraft Local Operations for 2020
Source: ANOMS, ICFI, HMMH

Aircraft Category	INM Aircraft Type	Annual Average Day Patterns				
		Local Patterns				Total Operations
		Day	Evening	Night	Total	
General Aviation Local	A109	0.0136	0.0015	0.0000	0.0152	**0.0303**
	B429	0.0106	0.0030	0.0045	0.0182	**0.0364**
	BEC58P	0.4504	0.0667	0.0379	0.5550	**1.1100**
	CNA172	0.7794	0.3306	0.1092	1.2192	**2.4384**
	CNA182	0.1577	0.0106	0.0076	0.1759	**0.3518**
	CNA206	0.6263	0.0243	0.0227	0.6733	**1.3466**
	GASEPF	0.0455	0.0030	0.0030	0.0516	**0.1031**
	GASEPV	1.7211	0.1592	0.0546	1.9349	**3.8698**
	PA28	0.2426	0.0591	0.0227	0.3245	**0.6490**
	PA31	0.0182	0.0000	0.0000	0.0182	**0.0364**
	S70	0.0152	0.0091	0.0000	0.0243	**0.0485**
	S76	0.0030	0.0030	0.0000	0.0061	**0.0121**
	SA350D	0.9068	0.0970	0.0667	1.0706	**2.1411**
General Aviation Local Total		**4.9905**	**0.7673**	**0.3291**	**6.0868**	**12.1736**
Notes: Each local pattern consists of two operations – an arrival and a departure. Totals may not match exactly due to rounding						

The detailed forecast for 2020 relies on several general assumptions concerning changes to the 2015 fleet occurring within the ONT NEM Update time frame (five years). Passenger aircraft operations are expected to increase in the Boeing 737 Next Generation aircraft while the 737 Classic aircraft flights

decrease. MD-80 operations are expected to cease operations at ONT by 2020 while regional jet operations continue to increase at a moderate rate. Cargo aircraft operations will experience a slight growth with increases in MD-11 and Boeing 767 operations offset by the retirement of the MD-10 aircraft. The cargo feeder aircraft will experience little growth as the feeder network is mature with little expansion anticipated. General Aviation aircraft operations will experience moderate growth with the fleet mix being stable except for the removal of Part 36 Stage 2 aircraft weighing less than 75,000 pounds after December 31, 2015.[18] The split between day/evening/night operations was assumed to be the same as the existing operations.

2.1.3 Aircraft Noise and Performance Characteristics

Specific noise and performance data must be entered into the INM for each aircraft type operating at the airport. Noise data are included in the form of sound exposure level (SEL – see Appendix A) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines at a specific thrust level. Performance data include thrust, speed and altitude profiles for takeoff and landing operations. The INM database contains standard noise and performance data for over one hundred different fixed-wing aircraft types, most of which are civilian aircraft. The INM automatically accesses the noise and performance data for takeoff and landing operations by those aircraft.

Within the INM database, aircraft takeoff or departure profiles are usually defined by a range of trip distances identified as "stage lengths." A longer trip distance or higher stage length is associated with a heavier aircraft due to the increase in fuel requirements for the flight. For this study, city pair distances were determined for each departure flight track and used to define the specific stage length using the INM standard definitions.

This study included many different aircraft types. While many aircraft could be modeled by direct assignments from the standard INM database, some were not in the INM database. For those aircraft types not in the INM standard database, FAA-approved substitutions were used to model the aircraft with a similar type. User substitutions were submitted to the FAA on July 15, 2014 (Appendix H) with the FAA approval received on August 5, 2014 (Appendix I).

2.1.4 Runway Utilization

Weather, in particular wind direction and wind speed, is the primary factor affecting runway use at airports. Additional factors that may affect runway use include the position of a facility relative to the runways and temporary runway closures, generally for airfield maintenance and construction. The flight tracks within the radar data reviewed for the NEMs Update include the three operational flows detailed as follows:

- Westerly Flow – aircraft arrive from the east and depart to the west on Runways 26L and 26R
- Easterly Flow – aircraft arrive from the west and depart to the east on Runways 8Land 8R

[18] 14 CFR Part 36 describes noise certification of aircraft. Stage 2 aircraft are louder than Stage 3 aircraft of the same weight. 14 CFR Part 36 also defines Stage 4 (quieter than Stage 3) and may in the future define Stage 5. 14 CFR Part 36 Stage 2 aircraft will typically not be allowed to operate in continental United States after December 31, 2015 per *the FAA Modernization and Reform Act* of 2012. Currently, aircraft certified to 14 CFR Part 36 Stage 2 and weighing more than 75,000 lb have generally been prohibited from operating the in the continental United States since 2000. In practice, the 2012 act affects the remaining aircraft weighing less than 75,000 lb. The FAA released a final rule, effective September 3, 2013, that adopts the prohibitions into operating rules.

- Contra-Flow – aircraft arrive from the east on Runway 26L and 26R and depart to the east on Runways 8L and 8R (limited to time period 10:00 p.m. to 7:00 a.m., weather or other conditions permitting)

2.1.4.1 Existing Conditions – 2015 Runway Utilization

The flight track data from ANOMS for calendar year 2013 provided the preliminary information to determine the actual runway end used for each arrival and departure as well as the time of day. Final runway usage was determined after modeling the flight operations for 2015 on the radar flight tracks. Runway use for all aircraft types is listed in Table 10 and shown graphically in Figure 2 through Figure 4.

Table 11 provides additional details, including runway use percentages by the time period (daytime, evening, and nighttime) and aircraft group.

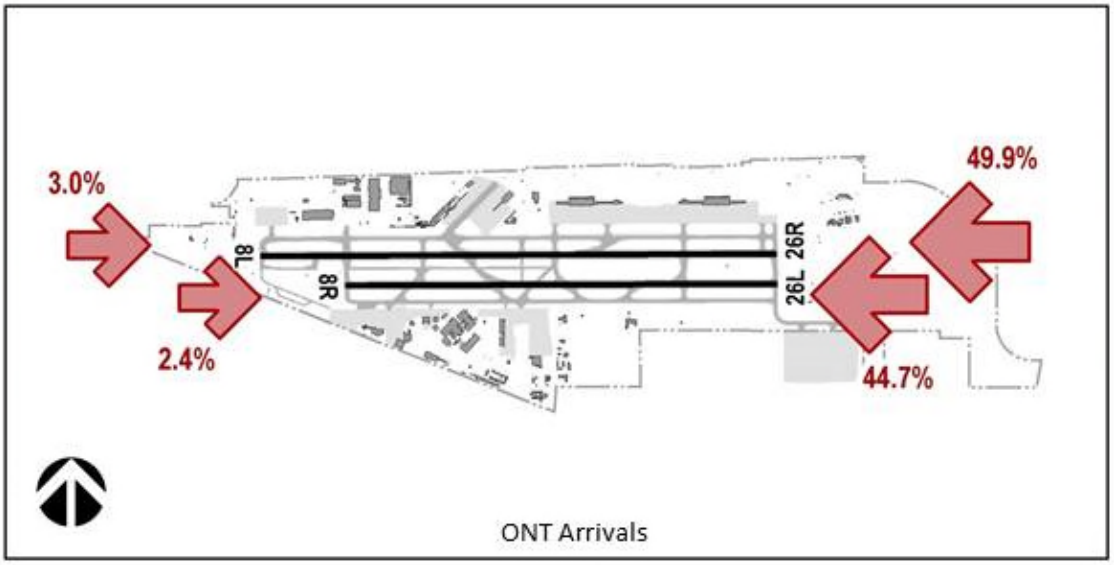
Table 10 – Overall Runway Use Percentages for 2015
Source: HMMH

Runway	Arrivals			Departures		
	Day	Evening	Night	Day	Evening	Night
8L	3.0%	1.4%	1.6%	3.2%	1.4%	34.8%
8R	2.4%	1.5%	0.7%	1.4%	1.6%	35.7%
26L	44.7%	41.6%	61.7%	35.6%	41.6%	23.0%
26R	49.9%	55.5%	36.0%	59.8%	55.4%	6.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 11 – Modeled Average Daily Runway Use by Aircraft Category for 2015
Source: HMMH

Aircraft Category	Runway	Arrivals			Departures		
		Day	Evening	Night	Day	Evening	Night
Air Carrier	8L	4.3%	1.8%	1.6%	4.8%	1.7%	40.0%
	8R	0.5%	0.5%	0.4%	0.3%	1.2%	45.1%
	26L	24.1%	26.2%	58.1%	7.7%	35.5%	8.0%
	26R	71.1%	71.6%	39.8%	87.3%	61.6%	6.8%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Taxi	8L	1.4%	0.8%	1.7%	1.6%	0.8%	24.2%
	8R	4.6%	3.8%	0.2%	1.8%	1.2%	5.0%
	26L	60.8%	61.4%	85.7%	59.0%	39.9%	66.1%
	26R	33.1%	34.0%	12.4%	37.5%	58.1%	4.7%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
General Aviation	8L	1.1%	0.3%	1.8%	0.7%	0.0%	2.9%
	8R	5.0%	3.3%	5.7%	3.7%	4.2%	33.9%
	26L	81.7%	87.5%	85.2%	83.1%	77.8%	53.3%
	26R	12.2%	8.9%	7.3%	12.5%	18.0%	9.9%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Military	8L	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	8R	0.0%	0.0%	18.3%	4.5%	14.3%	0.0%
	26L	75.3%	66.7%	77.6%	50.0%	78.6%	75.0%
	26R	24.7%	33.3%	4.2%	45.5%	7.1%	25.0%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Note: Totals may not match exactly due to rounding.							

Figure 2 – Overall Runway Use Percentages for 2015 – Day
Source: HMMH



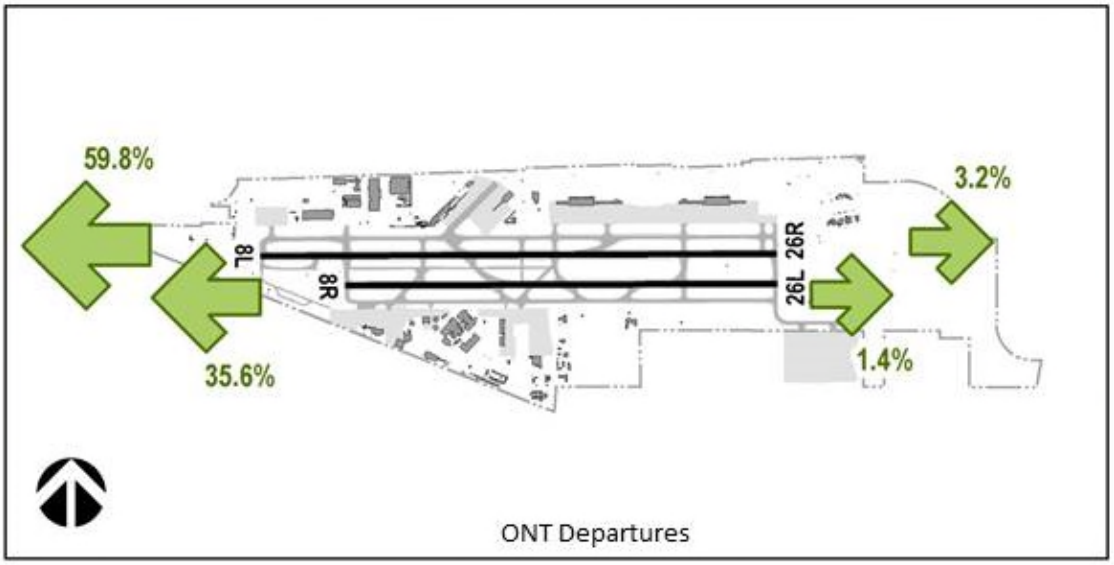


Figure 3 – Overall Runway Use Percentages for 2015 – Evening
Source: HMMH

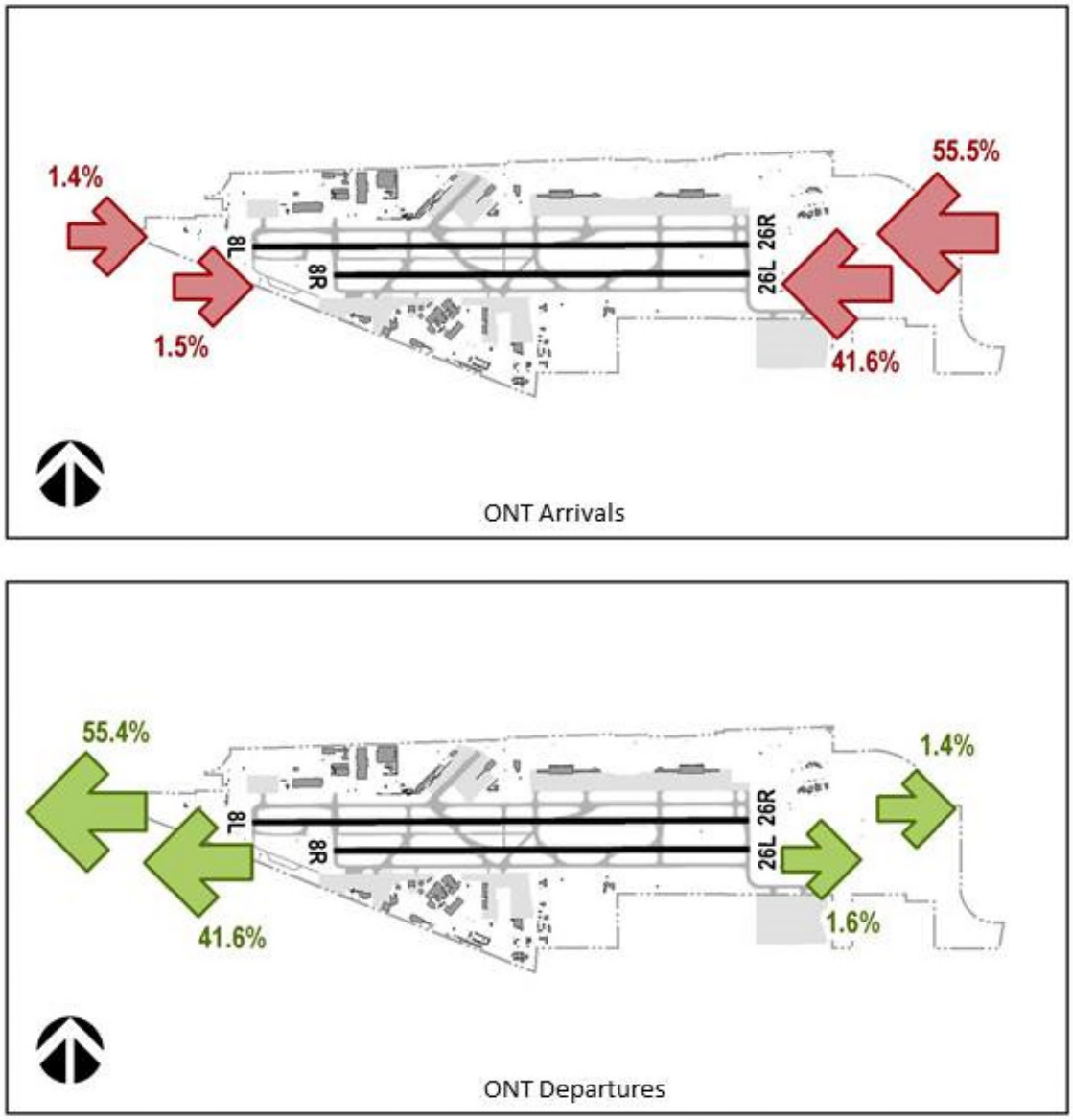
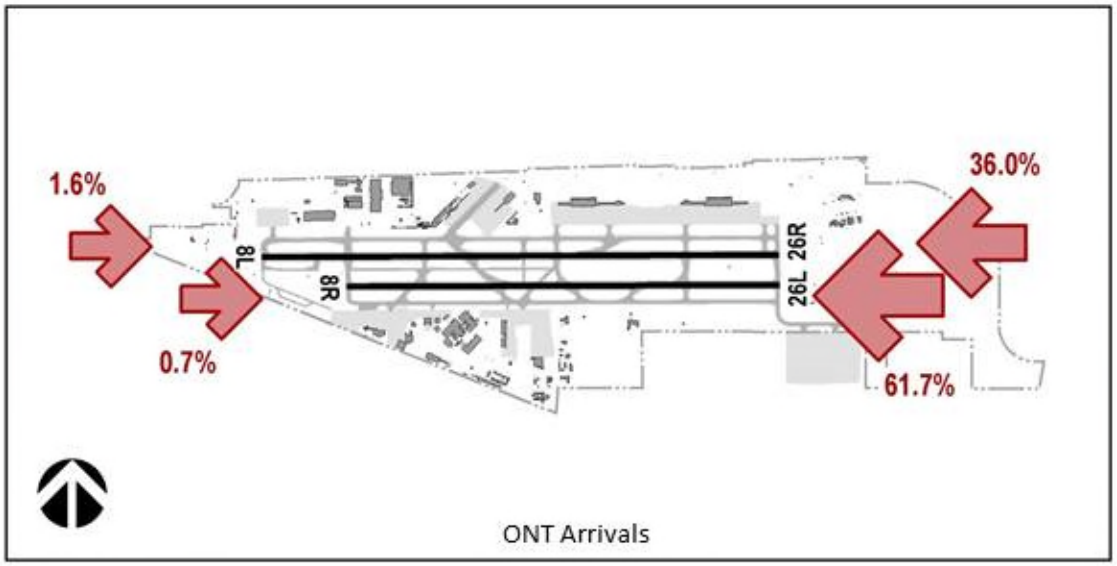
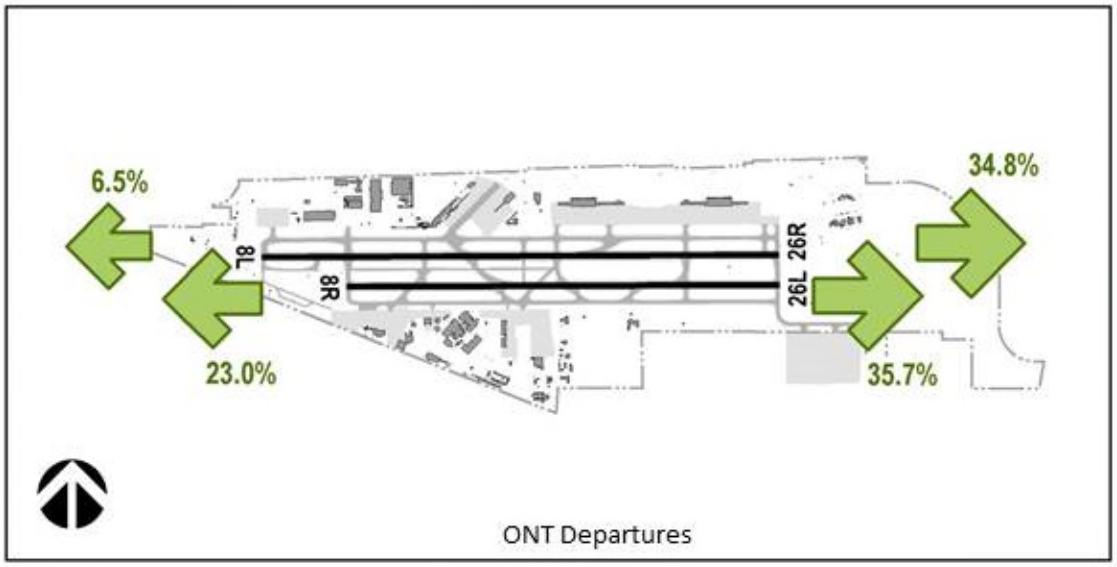


Figure 4 – Overall Runway Use Percentages for 2015 – Night
Source: HMMH





2.1.4.2 Forecast Conditions – 2020 Runway Utilization

Due to anticipated aircraft fleet mix changes in 2020, the runway use is slightly different than for 2015.

The forecast runway use data were incorporated into the development of the overall and modeled average day runway use percentages for 2020 as shown in Table 12 and Table 13 and depicted in Figure 5 through Figure 7.

Table 12 – Overall Runway Use Percentages for 2020
Source: HMMH

Runway	Arrivals			Departures		
	Day	Evening	Night	Day	Evening	Night
8L	3.1%	1.4%	1.6%	3.2%	1.4%	35.2%
8R	2.1%	1.6%	0.7%	1.3%	1.7%	36.4%
26L	41.1%	42.7%	63.9%	32.6%	42.6%	22.0%
26R	53.7%	54.3%	33.8%	62.9%	54.4%	6.4%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Note: Totals may not match exactly due to rounding.						

Table 13 – Modeled Average Daily Runway Use by Aircraft Category for 2020
Source: HMMH

Aircraft Category	Runway	Arrivals			Departures		
		Day	Evening	Night	Day	Evening	Night
Air Carrier	8L	4.2%	1.9%	1.6%	4.6%	1.7%	40.2%
	8R	0.5%	0.5%	0.4%	0.2%	1.2%	45.3%
	26L	23.0%	27.8%	60.6%	7.5%	36.6%	8.0%
	26R	72.4%	69.8%	37.4%	87.7%	60.5%	6.6%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Air Taxi	8L	1.7%	0.8%	1.7%	2.0%	0.8%	24.2%
	8R	4.1%	3.8%	0.2%	1.6%	1.2%	5.0%
	26L	54.5%	61.4%	85.7%	50.7%	39.9%	66.1%
	26R	39.7%	34.0%	12.4%	45.7%	58.1%	4.7%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
General Aviation	8L	1.1%	0.3%	1.9%	0.7%	0.0%	3.0%
	8R	5.0%	3.4%	5.7%	3.7%	4.3%	32.1%
	26L	81.6%	87.3%	84.8%	83.1%	77.9%	54.5%
	26R	12.3%	9.0%	7.6%	12.5%	17.8%	10.4%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Military	8L	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	8R	0.0%	0.0%	18.3%	4.5%	14.3%	0.0%
	26L	75.3%	66.7%	77.6%	50.0%	78.6%	75.0%
	26R	24.7%	33.3%	4.2%	45.5%	7.1%	25.0%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Note: Totals may not match exactly due to rounding.							

Figure 5 – Overall Runway Use Percentages for 2020 – Day
Source: HMMH

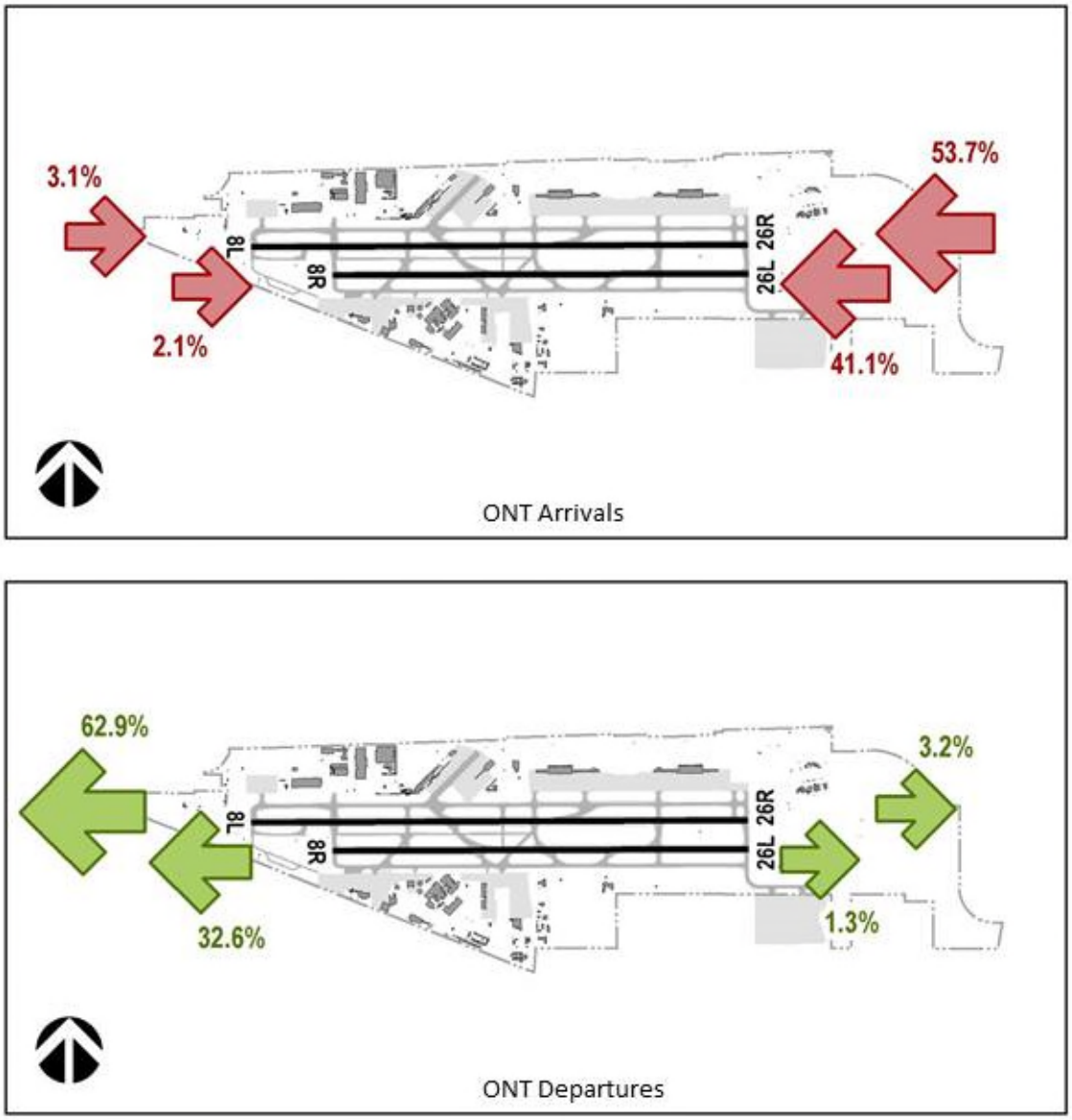
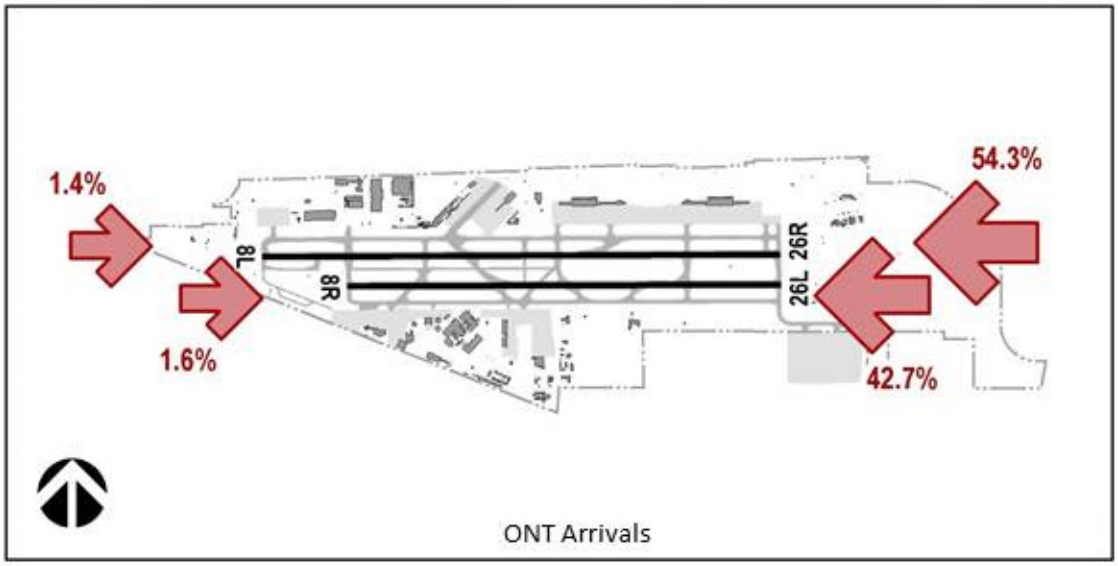


Figure 6 – Overall Runway Use Percentages for 2020 – Evening
Source: HMMH



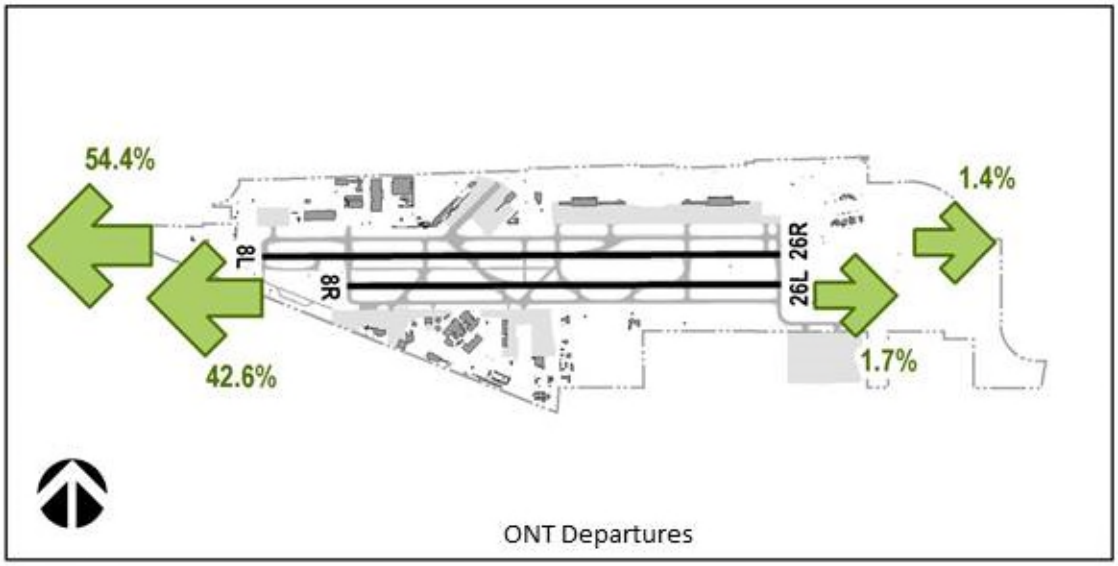
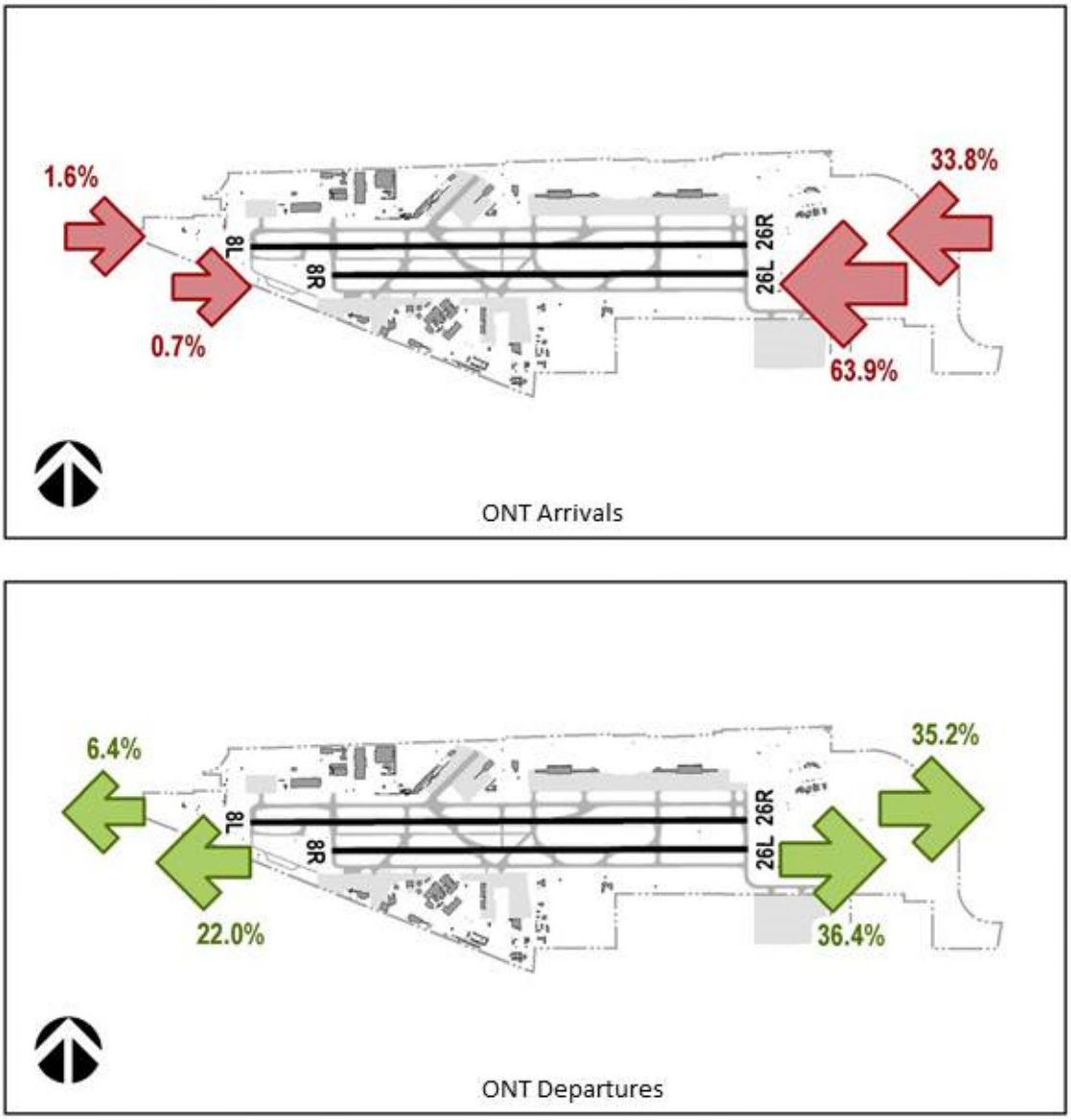


Figure 7 – Overall Runway Use Percentages for 2020 – Night
Source: HMMH



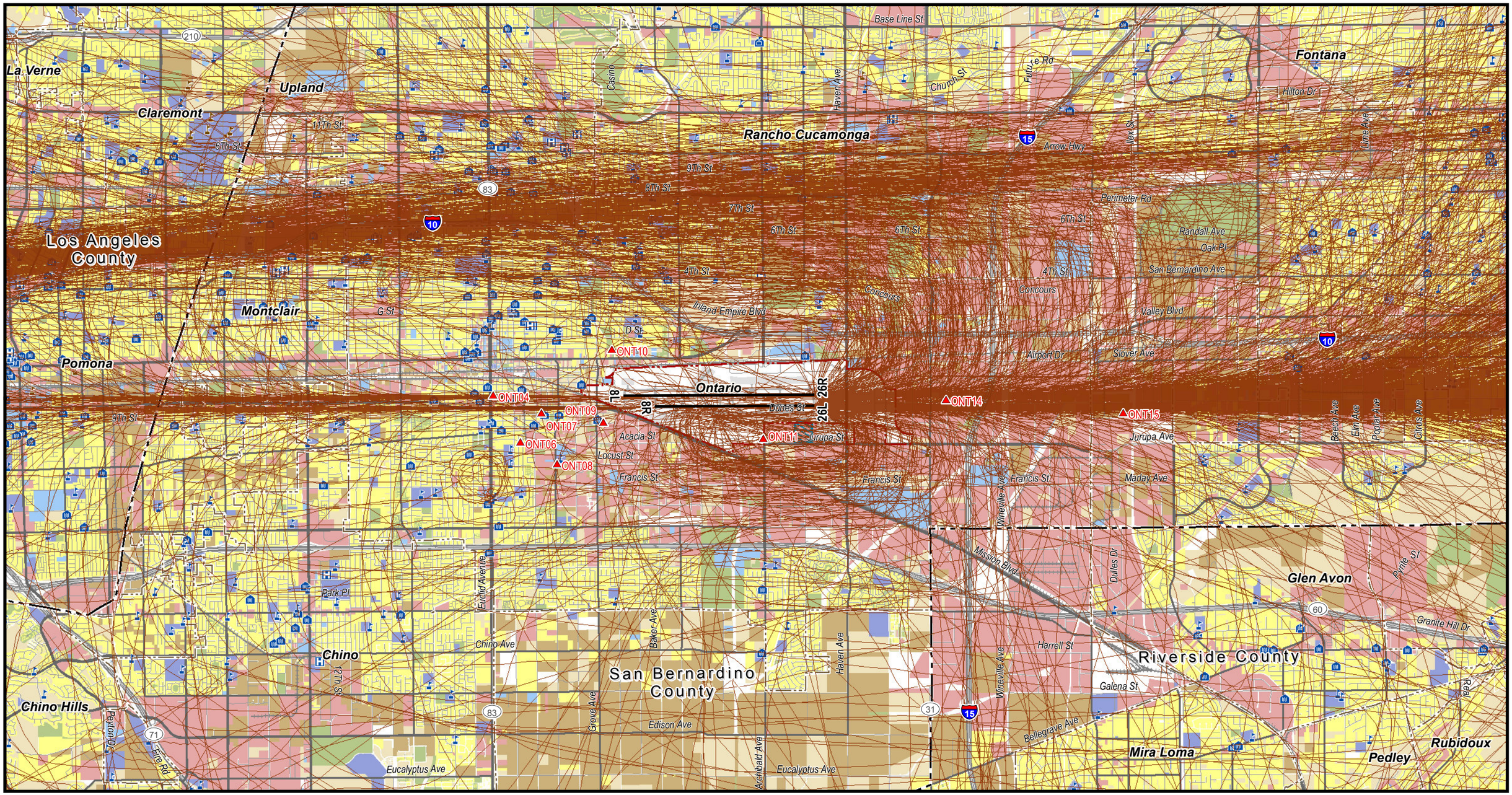
2.1.5 Flight Track Geometry and Utilization

HMMH has developed a pre-processor named "RealContours™". RealContours converts aircraft flight track data into FAA's INM input data, runs the INM and provides the INM results based on the modeling of each individual flight track. RealContours provides increased precision in modeling INM flight tracks by using individual flight tracks taken directly from radar systems rather than relying on consolidated, representative flight track data that are developed using the standard INM method. This process provides the advantage of modeling each aircraft operation on the specific runway it actually used and at the actual time of day of the arrival or departure. LAWA requested to use RealContours for this NEM update on December 23, 2014 and received FAA approval on January 16, 2015. Appendix J and Appendix K include written records of this communication.

A total of 69,005 individual flight tracks were modeled for the 2015 NEM. For the 2020 NEM, 69,176 individual flight tracks were modeled. Figure 8 and Figure 9 present generalized depictions of the flight tracks and operations used to develop the 2015 and 2020 contours by providing approximately a randomized ten percent sample of the arrivals and departures, respectively. This randomization avoids any seasonal bias that may exist. Therefore, Figure 8 presents a sample of 3,518 arrival model tracks and Figure 9 presents a sample of 3,396 departure model tracks. No significant changes to the airfield layout are expected within the 5-year time frame for this project that would alter the aircraft takeoff or landing locations that could potentially alter the flight track geometries and utilization.

In addition to the flight track graphics presented in Figure 8 and Figure 9, flight track density plots are provided to help understand where the majority of aircraft typically fly when arriving and departing ONT. These plots permit presentation of comparative information for longer time frames using thousands of actual aircraft flight tracks. Rather than presenting every individual track, these plots use color gradations to depict the frequency of aircraft operations over extended time periods. These graphics summarize the flight track geometry, dispersion, and the frequency of aircraft operations by using a uniform color gradient scheme based on the relative density of traffic. The "warm" colors (reds) indicate the areas where the most aircraft operations occurred and the "cool" colors (blues) indicate the areas where the fewest aircraft operations occurred given the sets of flight track data described above.

The flight density plots in Figure 10 and Figure 11 represent the density (i.e., frequency) of jet arrivals and jet departure flight tracks, respectively. The approximately 69,000 flight tracks used to develop these density plots are from January 1, 2013 to December 31, 2013 as previously described in Section 2.1.2.1, above. These figures provide a visual summary of where aircraft predominantly fly throughout the year and represent a sample of the flight tracks that were used to develop the noise contours in this NEM Update. Note that aircraft densities appear to drop suddenly over the airfield due to the flight tracks beginning and ending near the airfield within the data set.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure8_ARR_Flight_Track_Sample.mxd

Note: Flight tracks shown represent a randomized 10% sample of annual ONT arrivals

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; LAWA (Parcel Data / Land Use), March 5, 2014; Southern California Association of Governments (LA County Land Use), December 22, 2014; Riverside County (Land Use), September 12, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

- Modeled Arrival Flight Track
- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Pavement
- Municipal Boundary
- County Boundary
- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad
- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- School
- College
- Hospital
- Place of Worship

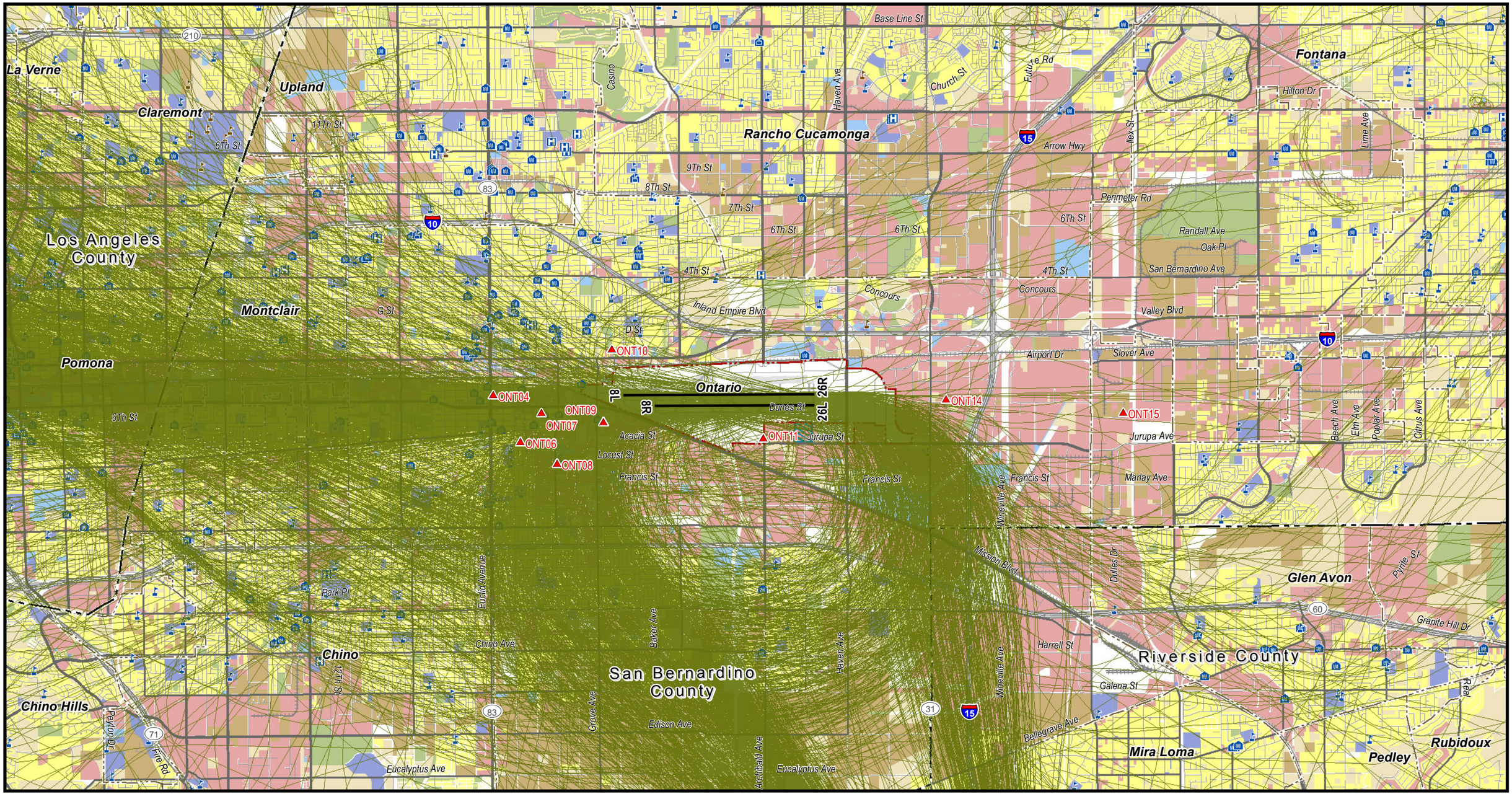
0 6,000 12,000 Feet

LA/OntarioInternational
Los Angeles World Airports

Figure 8

Representative Sample of
Modeled Arrival Flight Tracks (2015 & 2020)

HARRIS MILLER MILLER & HANSON INC.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure9_DEP_Flight_Track_Sample.mxd

Note: Flight tracks shown represent a randomized 10% sample of annual ONT departures

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; LAWA (Parcel Data / Land Use), March 5, 2014; Southern California Association of Governments (LA County Land Use), December 22, 2014; Riverside County (Land Use), September 12, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

- Modeled Departure Flight Track
- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Pavement
- Municipal Boundary
- County Boundary
- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad
- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- School
- College
- Hospital
- Place of Worship

0 6,000 12,000 Feet

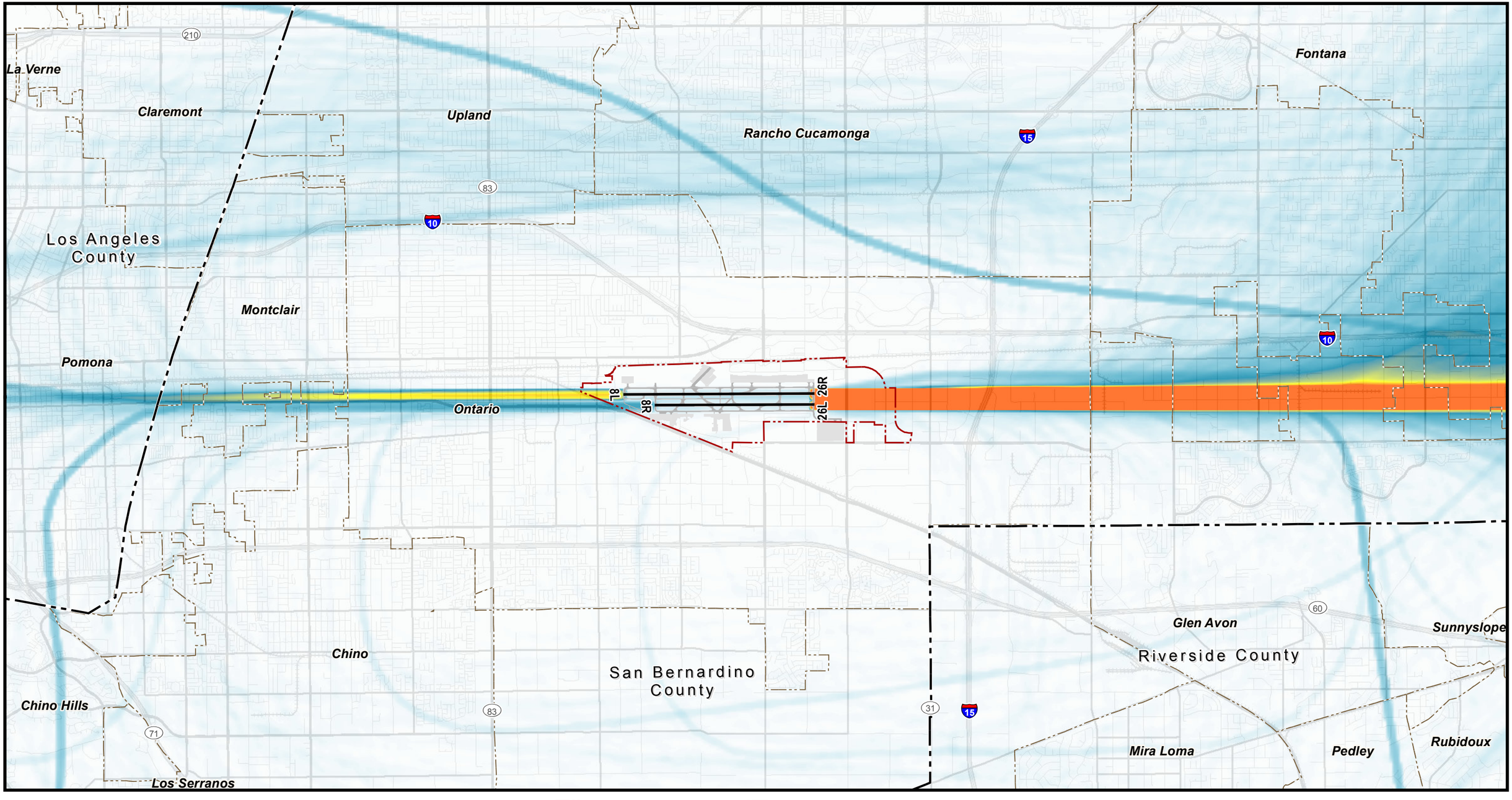
LA/**Ontario**International

Los Angeles World Airports

Figure 9

Representative Sample of
Modeled Departure Flight Tracks (2015 & 2020)

HARRIS MILLER MILLER & HANSON INC.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure10_ARR_Flight_Track_Density.mxd

Note: Flight track density shown represents annual ONT jet arrivals

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014;

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

ONT Airport Property Boundary
Runway
Airport Pavement

Municipal Boundary
County Boundary

Primary Highways
Primary Roads & Highways
Local Roads
Railroad

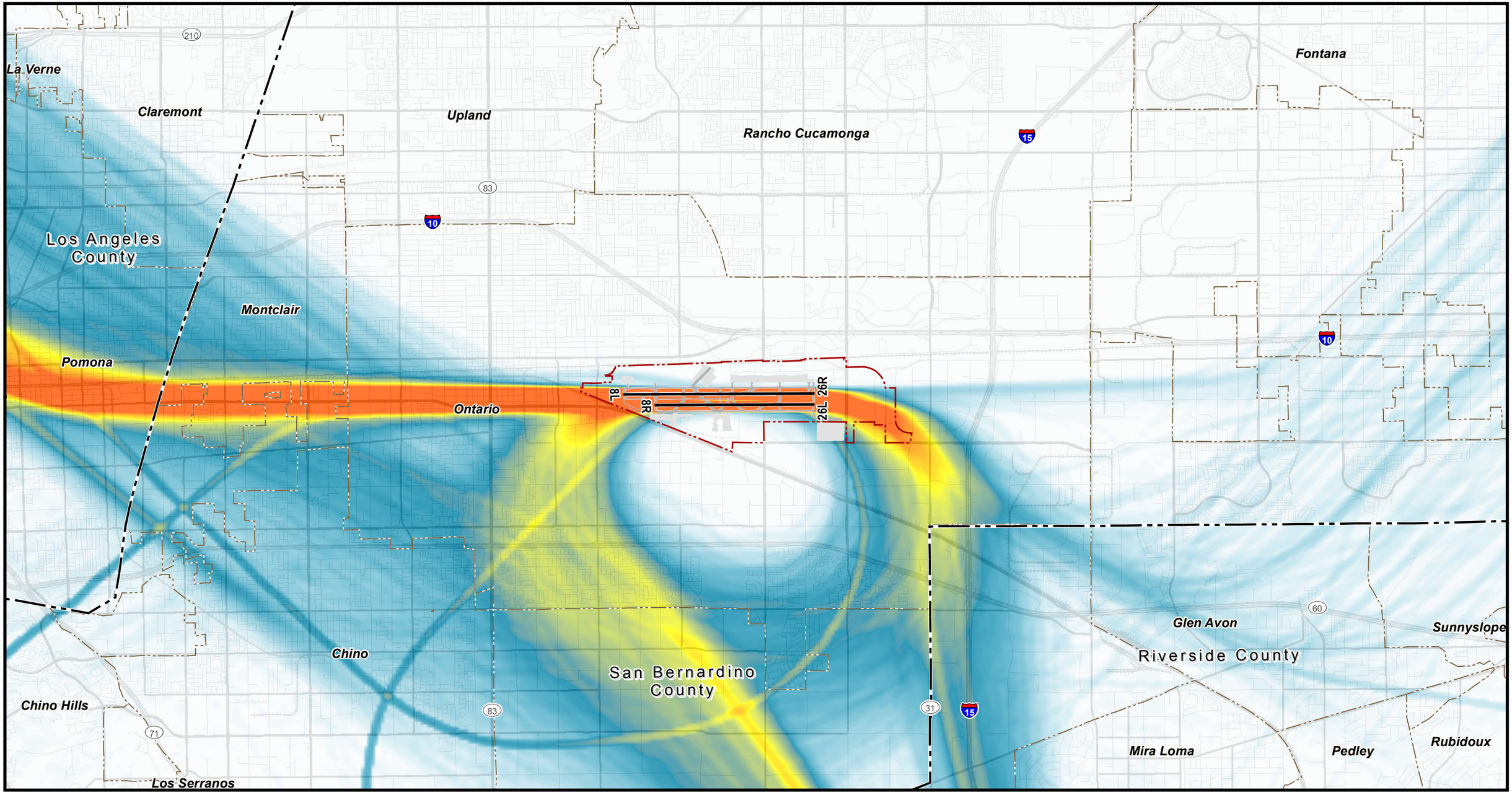
Low — Medium — High
Flight Track Density

0 6,000 12,000 Feet

LA/OntarioInternational
Los Angeles World Airports

Figure 10
Flight Track Density Plot for
LA/Ontario International Airport Jet Arrivals

HARRIS MILLER MILLER & HANSON INC.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure11_DEP_Flight_Track_Density.mxd

Note: Flight track density shown represents annual ONT jet departures

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014;

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

ONT Airport Property Boundary
Runway
Airport Pavement

Municipal Boundary
County Boundary

Primary Highways
Primary Roads & Highways
Local Roads
Railroad

Low — Medium — High
Flight Track Density

0 6,000 12,000 Feet

LA/OntarioInternational
Los Angeles World Airports

Figure 11

Flight Track Density Plot for
LA/Ontario International Airport Jet Departures

HARRIS MILLER MILLER & HANSON INC.

2.1.6 Meteorological Conditions

The INM has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, relative humidity at the airport, and average headwind speed. Weather data from the National Climatic Data Center (NCDC)[19] for ONT (WBAN # 03102) were collected and reviewed for calendar years 2005 through 2013. Based on analysis of the NCDC data, the average annual conditions for ONT include a temperature of 65.2° F, sea level pressure of 29.95 in-Hg, and relative humidity of 54.6 percent. For modeling purposes, the INM standard average headwind default speed of 8 knots was used.

2.1.7 Terrain

Terrain data describe the elevation of the ground surrounding the airport and on airport property. The INM uses terrain data to adjust the ground level under the flight paths. The terrain data do not affect the aircraft's performance or emitted noise levels, but affect the vertical distance between the aircraft and a "receiver" on the ground. This in turn affects the noise levels received at a particular point on the ground. The terrain data were obtained from the United States Geological Survey (USGS)[20] National Map Viewer and were used with the terrain feature of the INM in generating the noise contours for the ONT NEMs.

2.2 Land Use Base Map

The LA/Ontario International Airport is located approximately three miles east southeast of the center of the City of Ontario. It is situated near the intersections of three major freeways (Interstates 10 and 15, and Highway 60). The land uses immediately adjacent and north of the Airport are mixed use with both commercial and some public uses present. To the east and south of the Airport the land use is predominantly commercial or light industrial. The area to the west is a mix of commercial and residential uses; many of the residential parcels have been purchased by the Airport or sound insulated as part of the ONT NCP noise mitigation measures.

In April 2011 the City of Ontario adopted a land use compatibility plan for the Airport (ALUCP) as required by state law and based on guidance contained in the California "Airport Land Use Planning Handbook", published by the California Department of Transportation, Division of Aeronautics and in coordination with the FAA Los Angeles Airports District Office.[21, 22, 23] The purpose of the plan is to further and protect the public interests in aeronautics while "assuring that persons residing in the vicinity of airports are protected to the greatest possible extent against intrusions by unreasonable levels of aircraft noise."[24] The Handbook promotes compatibility between the Airport and the land uses that surround it by providing detailed guidance to affected local government jurisdictions in areas surrounding the airport and emphasizing prevention of future land use compatibility conflicts rather than mitigating existing land use incompatibilities.

The ALUCP used the forecast year 2030 for predicted aircraft operational levels under two different scenarios: "No Project" with existing runway configuration and a forecast of 343,000 operations and "Proposed Project" with a revised runway configuration and a forecast of 465,000 operations. Identified lands receiving potential noise impacts would be located within the jurisdictions of the Cities of Chino,

[19] http://www.ncdc.noaa.gov
[20] Data downloaded from http://viewer.nationalmap.gov/viewer/ on 07/02/2014 in 1/3 Arc-second GridFloat format.
[21] *California State Aeronautics Act*, Article 3.5, Airport Land Use Commissions, September 2001.
[22] *LA/Ontario International Airport Land Use Compatibility Plan*, City of Ontario, April 2011.
[23] *California Airport Land Use Planning Handbook*, State of California Department of Transportation, Division of Aeronautics, updated October 2011.
[24] Ibid.

Fontana, Montclair, and Ontario in addition to some unincorporated areas in the Counties of Riverside and San Bernardino. For this update of the NEM, the runway configuration is expected to remain unchanged and the forecast operations for both 2015 and 2020, shown in Table 3, are less than the aircraft activity forecast for the two scenarios considered in the ALUCP.

Land use compatibility was assessed relying upon geo-spatial data collected from LAWA, City of Ontario, and San Bernardino County. These data included airport layout information, noise mitigated parcels, and land use by parcel in the Airport environs. Noise sensitive land use locations were field-verified, as identified per Part 150 guidelines, based on the extents of the LAWA noise exposure contours reported for the fourth quarter 2013. Land use data beyond the predicted CNEL 65 dB contour were not field verified.

Detailed, existing land uses beyond the Airport boundary were aggregated into the following seven, general categories: Residential, Public Use 1, Public Use 2, Recreational/Open Space, Commercial Use, Manufacturing and Production, and Vacant/Undefined. The residential category includes both single-family and multi-family dwelling units. The public use 1 category includes non-residential noise-sensitive uses, such as schools, places of worship, etc. The public use 2 category includes areas of non-noise-sensitive use such as public parking lots, landfills, etc. The recreational/open space category includes all publicly or privately owned lands held for park, conservation, or golf course uses and cemeteries. The commercial category includes all types of retail and business uses, as well as offices. The manufacturing and production use category includes manufacturing and warehousing. The vacant or undefined category includes those uses where the property is vacant or for which a specific land use has not been assigned.

2.2.1 Jurisdiction and Zoning around the Airport

The City of Ontario has land-use control jurisdiction and implements the zoning regulations for the entire study area. One element of the ALUCP is that it establishes noise policies for evaluating new development including residential and nonresidential uses that include maximum interior noise levels and requirements for acquiring avigation easements.[25]

2.2.2 Compatible Land Use Guidelines

Cities and counties exercise planning and land use regulatory authority in California as authorized by state statute[26], which requires counties to establish an airport land use commission (ALUC) along with comprehensive planning as a prerequisite for the establishment of land use regulations. As discussed previously, the City of Ontario adopted its ALUCP in April 2011 which outlined the various noise policies and criteria for land use around ONT.

Under the provisions of Part 150, land uses exposed to noise levels of less than CNEL 65 dB are considered compatible. The land use compatibility guidelines contained in Part 150, which are based on empirical studies of the correlation between reported levels of annoyance and levels of cumulative noise exposure, identify the types of land uses that are most "sensitive" to airport related noise. For example, residential uses (including mobile home parks and transient lodgings), schools, and amphitheaters are, with few exceptions, considered incompatible with noise levels of CNEL 65 dB or greater. Other uses, including hospitals, nursing homes, churches and auditoriums, are also considered incompatible within levels of CNEL 65 dB or greater.

[25] *LA/Ontario International Airport Land Use Compatibility Plan, Chapter* 2, City of Ontario, April 2011.
[26] *State Aeronautics Act*, California Public Utilities Code, Section 21001 et seq., California Department of Transportation, Division of Aeronautics, Sacramento, CA, February 2013.

FAA land use guidelines, as defined in Part 150 and reproduced here in Table 14 are unchanged since the previous Part 150 update and again used for this NEM update. Figure 12 shows the land uses, as defined in Table 14, in the vicinity of the airport.

Table 14 – Part 150 Noise/Land Use Compatibility Guidelines
Source: 14 CFR Part 150, Appendix A, Table 1

	Yearly Day-Night Average Sound Level, DNL, [or Community Noise Equivalent Level, CNEL], in Decibels					
Land Use	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	Y(2)	Y(3)	Y(4)	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key to Table 14 – ***Notes are presented on the following page***

SLUCM: Standard Land Use Coding Manual.

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

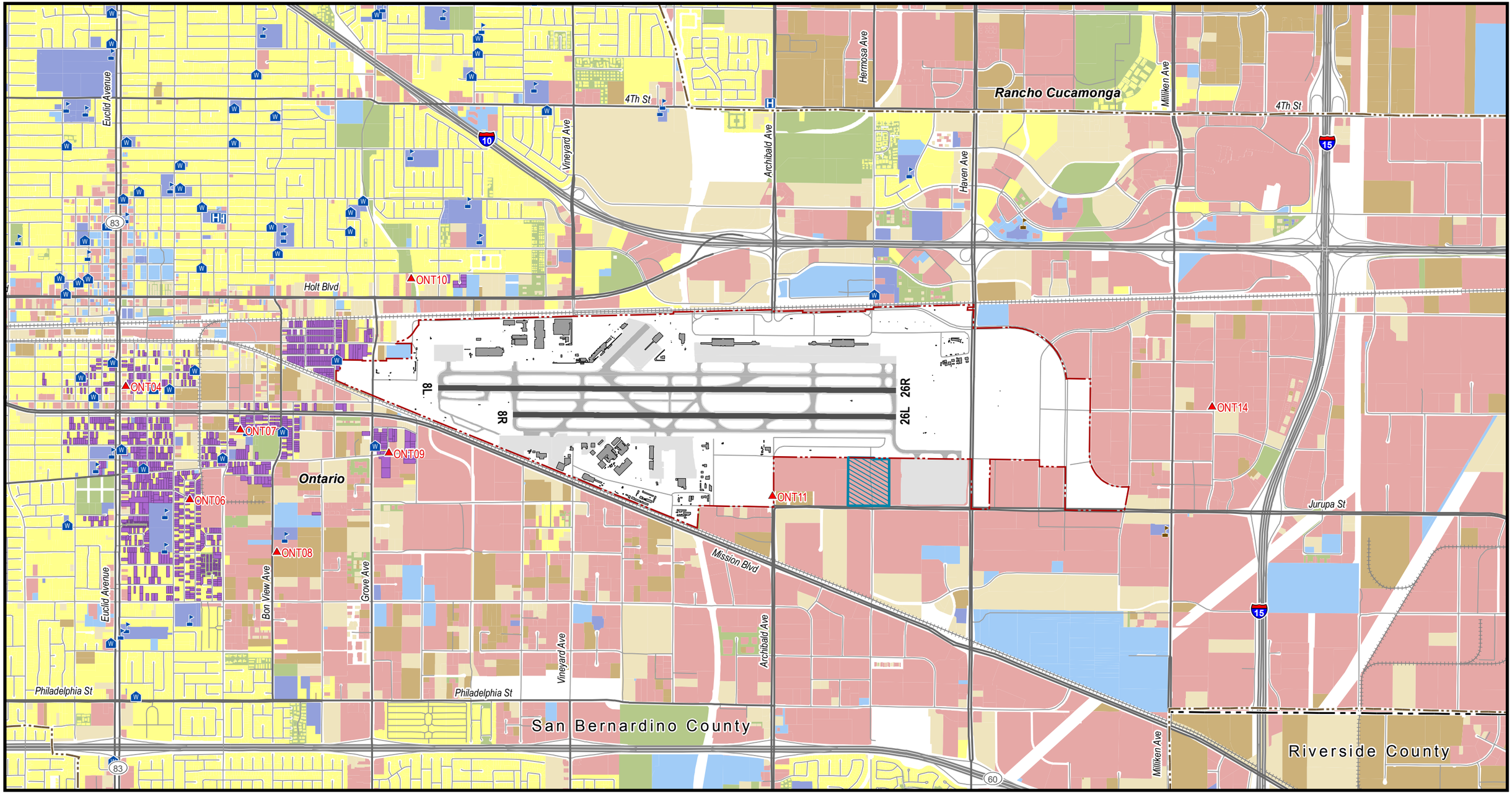
NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table 14

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under 14 CFR Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

1. Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
5. Land use compatible provided special sound reinforcement systems are installed.
6. Residential buildings require an NLR of 25.
7. Residential buildings require an NLR of 30.
8. Residential buildings not permitted.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure12_LA_Land_Use_Base_Map.mxd

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; Riverside County (Parcel Data / Land Use), March 5, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Buildings
- Airport Pavement
- Municipal Boundary
- County Boundary

- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- Noise Mitigated Parcel

- School
- College
- Hospital
- Place of Worship

- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad

0 2,500 5,000 Feet

LA/**Ontario**International
Los Angeles World Airports

Figure 12
Land Use Base Map

HARRIS MILLER MILLER & HANSON INC.

3 NOISE EXPOSURE MAPS AND LAND USE COMPATIBILITY

As discussed in Section 1.2.1, the most fundamental elements of the NEM submission are cumulative noise exposure contours for annual operations at the airport for: (1) data representing the year of submission and (2) data representing a forecast year at least five years from the year of submission.

The year of submission for this NEM Update is 2015. Therefore, the existing conditions noise contours are for 2015 and the five-year forecast contours are for 2020.

Section 2 summarized the noise modeling assumptions, identified data sources, reviewed the modeling process, and presented the land use base map. This section describes the updated NEMs and associated land use compatibility as follows:

- Section 3.1 presents the NEMs
- Section 3.2 documents incompatible land uses within the NEM noise contours

3.1 Noise Exposure Maps Figures

Figure 13 and Figure 14 present the NEM figures for existing (2015) and forecast (2020) conditions, respectively. ***These are the official Noise Exposure Maps that LAWA is submitting under Part 150 for appropriate FAA review and determination of compliance, pursuant to Part 150, §150.21.***

The copies of the figures bound into this volume on the following pages are at a scale of 1" = 2,500', which is smaller than the minimum scale permitted under §A150.103(b)(1); i.e., 1" = 2,000'. Copies of the figures at the required 1" = 2,000' scale are provided in a pocket following each figure.

The two figures identify the following items, as required in Part 150 (in the sections cited):[27]

- Runway layout as required in §A150.103(b)(1). Section 4.1 provides more detailed information on Part 150 requirements related to runway layout and other airfield geometry data, including a more detailed airport layout diagram (Figure 1).
- Calendar year 2015 and 2020 noise contours (for 65, 70, and 75 dB CNEL) resulting from aircraft operations, as required in §A150.101(e)(3).
- Outline of the airport boundaries, as required in §A150.101(e)(4) and §A150.103(b)(1).
- Noncompatible land uses within the contours, as required in §A150.101(e)(5), including Part 150 land use categories. As noted on the figures, there are no incompatible land uses within the CNEL 65 dB contours.[28]
- Locations of noise sensitive public buildings, as required in §A150.101(e)(6).
- A note that there is one property within the contours that is on or eligible for inclusion in the National Register of Historic Places, as required in §A150.101(e)(6)
- The extent of the CNEL 65 dB contours is within the jurisdictional boundary of the City of Ontario. The area depicted on the maps extend beyond the CNEL 65 dB contours and additional jurisdictions are shown for reference as required in §A150.105.

[27] §A150.103(b)(1) also requires depiction of flight tracks out to 30,000' from each runway end. As noted in the FAA's "Part 150 Noise Exposure Maps Checklist" presented in Table 1 (pages 6-10 of this document), FAA permits separate flight track figures, to accommodate the high level of detail and large size required for this purpose. Section 2.1.5 presents flight track figures out to the required distance at a scale of 1" = 5,000'; these same figures are provided at the required 1" to 2,000' scale in a pocket following each figure.

[28] As noted on the figures, there is one commercial section identified on the National Register of Historic Places (Hofer Ranch).

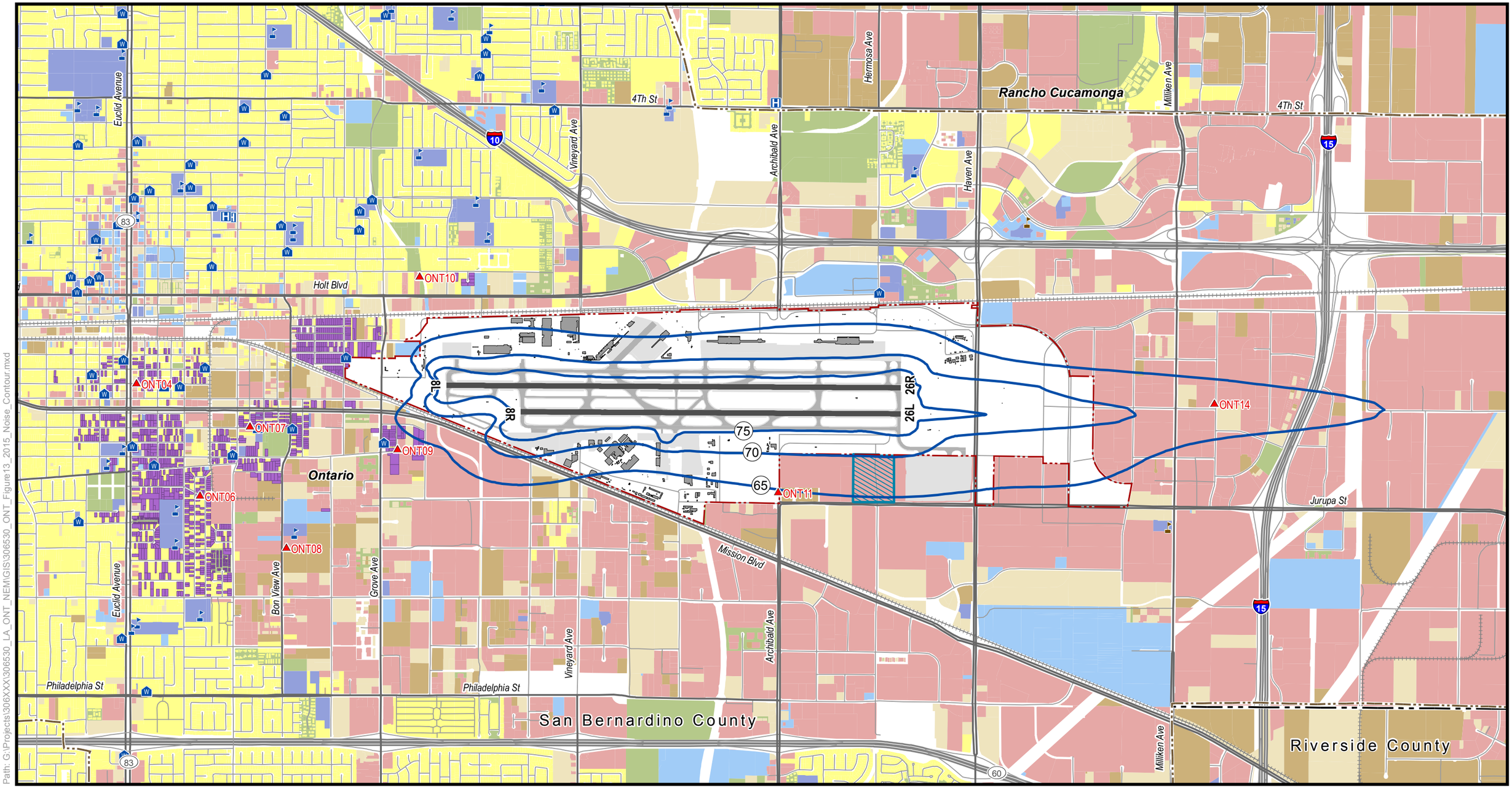
Figure 15 presents a comparison of the 2015 and 2020 contours, in the same format as the official NEM figures. The modeling assumptions related to airport layout remain unchanged from 2015 to 2020; however, the conditions differ in terms of the level and mix of aircraft activity as described in Section 2 and the forecast in Appendix F. The aircraft operations assumptions used in developing these two sets of contours are presented in Section 2.1.2, the runway use for the existing and forecast conditions is presented in Section 2.1.4 and the flight track use is described in Section 2.1.5.

The comparison of the two NEM years (2015 and 2020) shows slight increases in 2020 to the western extent of the contours (along the extended Runways 26L and 26R centerlines) and to the southeastern sideline contours where aircraft are initiating a right turn after departing Runways 8L and 8R. The slight increases in 2020 are related to the increase in operations projected over the forecast period. As shown in Table 15 the increase in overall area within the CNEL 65 dB contour was approximately 4% from 2015 to 2020.

Table 15 – Comparison of Land Area Enclosed by the 2015 and 2020 CNEL Contours
Source: HMMH

Noise Level, CNEL	Contour Land Area (Square Miles)		
	Existing Contours 2015	Forecast Contours 2020	Percent Change
65-70	1.6	1.7	4.3%
70-75	0.7	0.7	4.3%
75+	0.7	0.7	1.5%
Total 65+	**3.0**	**3.1**	**3.7%**

Notes:
Totals and sub-totals may not match exactly due to rounding.
Percent change denoted is relative to the existing conditions (2015) contours.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure13_2015_Noise_Contour.mxd

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; Riverside County (Parcel Data / Land Use), March 5, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

0 2,500 5,000 Feet

- Existing 2015 NEM Contour (65-75 dB CNEL)
- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Buildings
- Airport Pavement
- Municipal Boundary
- County Boundary
- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- Noise Mitigated Parcel
- School
- College
- Hospital
- Place of Worship
- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad

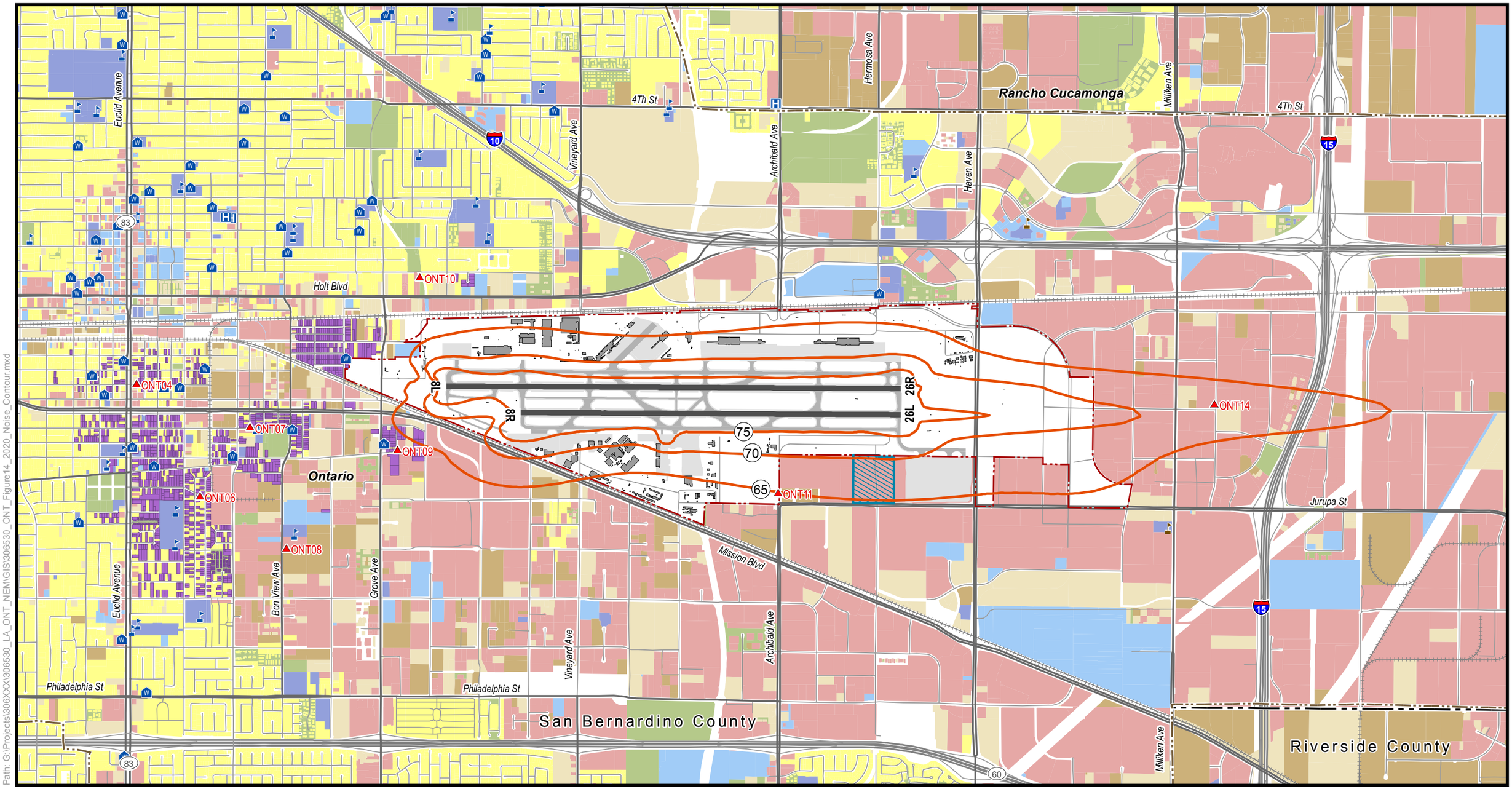
LA/**Ontario**International

Los Angeles World Airports

Figure 13

Existing Conditions (2015) Noise Exposure Map

HARRIS MILLER MILLER & HANSON INC.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure14_2020_Noise_Contour.mxd

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; Riverside County (Parcel Data / Land Use), March 5, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

0 2,500 5,000 Feet

- Forecast 2020 NEM Contour (65-75 dB CNEL)
- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Buildings
- Airport Pavement
- Municipal Boundary
- County Boundary
- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- Noise Mitigated Parcel
- School
- College
- Hospital
- Place of Worship
- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad

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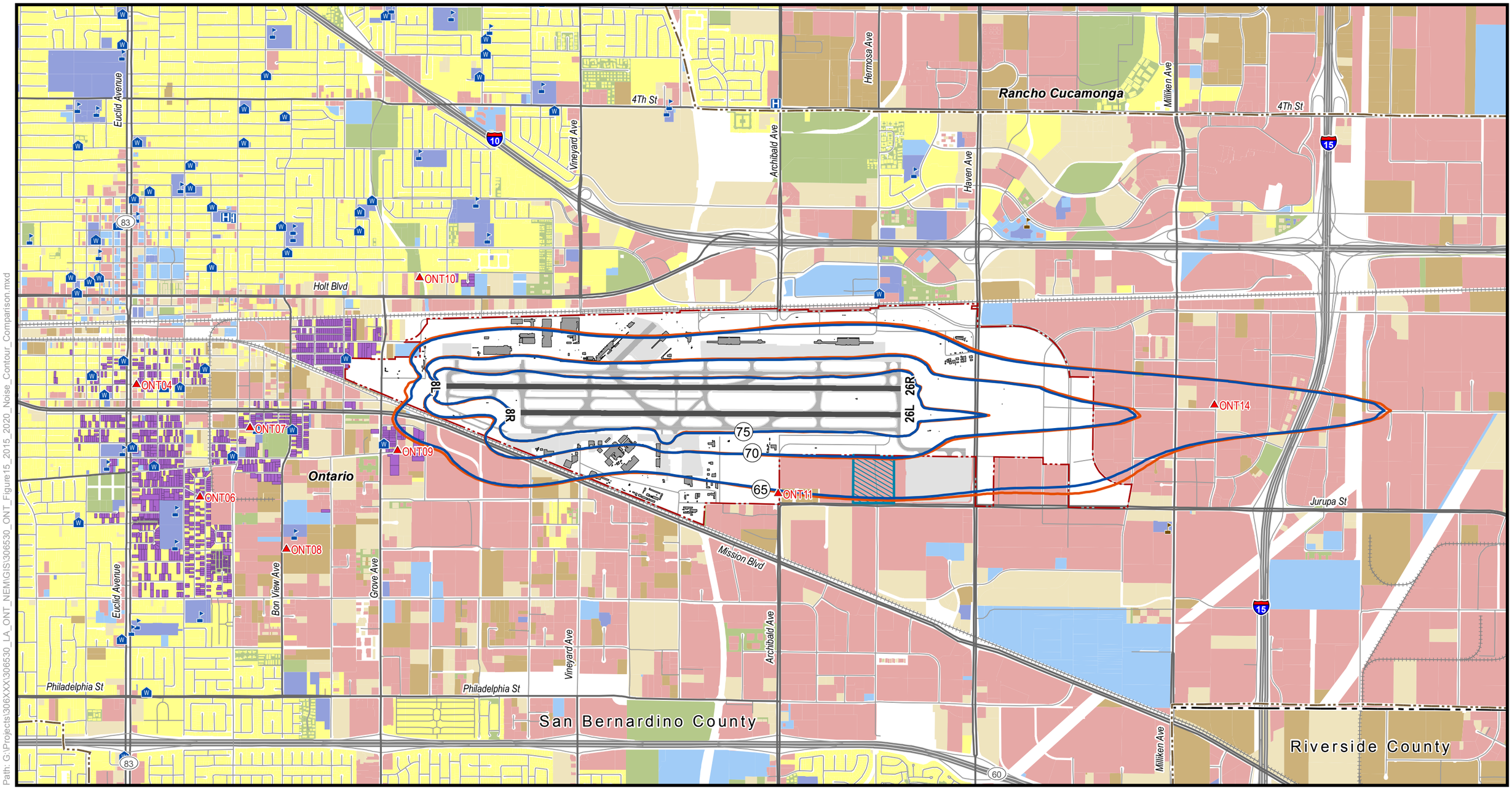
Figure 14

Forecast Conditions (2020) Noise Exposure Map

Harris Miller Miller & Hanson Inc.



Path: G:\Projects\306XXX\306530_LA_ONT_NEM\GIS\306530_ONT_Figure15_2015_2020_Noise_Contour_Comparison.mxd

Data Source: LAWA (Airport Area), June 18, 2014; LAWA (Airport Runways), June 18, 2014; LAWA (Airport Buildings), June 18, 2014; CAL-Atlas (Schools), March 11, 2014; CAL-Atlas (Hospital), March 11, 2014; CAL-Atlas (Place of Worship), March 11, 2014; CAL-Atlas (County Boundaries), March 10, 2014; Environmental Systems Research Institute, Inc. (Roads), May 03, 2012; NTAD (Railroads), June 23, 2014; CAL-Atlas (Lakes), March 11, 2014; CAL-Atlas (Rivers), March 11, 2014; CAL-Atlas (Local Parks), May 03, 2012; LAWA (Parcel Data / Land Use), June 18, 2014; LAWA (Mitigated Parcels), June 18, 2014; Riverside County (Parcel Data / Land Use), March 5, 2014

Prepared By: Harris Miller Miller & Hanson Inc., January 2015

0 2,500 5,000 Feet

- Existing 2015 NEM Contour (65-75 dB CNEL)
- Forecast 2020 NEM Contour (65-75 dB CNEL)
- Noise Monitoring Station (NMS) Location
- ONT Airport Property Boundary
- Runway
- Airport Buildings
- Airport Pavement
- Municipal Boundary
- County Boundary
- Residential Use
- Public Use 1
- Public Use 2
- Recreational / Open Space
- Commercial Use
- Manufacturing and Production
- Vacant / Undefined
- Historic
- Noise Mitigated Parcel
- School
- College
- Hospital
- Place of Worship
- Primary Highways
- Primary Roads & Highways
- Local Roads
- Railroad

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Figure 15

Comparison of Existing (2015) and Forecast (2020) Conditions Noise Exposure Map

Harris Miller Miller & Hanson Inc.

3.2 Compatible Land Use Analysis

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. LAWA uses the FAA's land-use compatibility guidelines, as set forth in Part 150, Appendix A, Table 1, which is reproduced as Table 14 in Section 2.2.2 of this document. As the table indicates, the FAA considers all land uses to be compatible with aircraft-related CNEL below 65 dB. Residential hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries are subject to the same criteria.

Based on the compatibility guidelines provided in Section 2.2.2, a list of noise-sensitive land uses was prepared and the existing land use from the City of Ontario and LAWA databases was refined to identify the location of all existing noise-sensitive land uses. This list of uses includes public and private schools and universities, hospitals, nursing homes, libraries, historic sites, parks, and places of worship. Historic resources were also identified and added to the inventory of noise-sensitive land uses and facilities. Existing noise-sensitive facilities and historic resources located within the study area are depicted on the NEMs, Figure 13 and Figure 14.

3.2.1 Historic resources and non-residential noise-sensitive land uses within the noise contours

The NEM base map depicts existing land uses from LAWA and City of Ontario GIS data, which correspond to or are included in the major categories identified in Part 150 guidelines and detailed in Section 2.2. Where several uses are intermixed, such as industrial, office, or other commercial uses, the contour graphics land use indicates the most common use.

As mentioned previously, Figure 13 and Figure 14 present NEMs for 2015 and 2020, respectively. There are no public facilities within the contours. There is one historic resource (Hofer Ranch) within the noise exposure contour (CNEL 65 dB) associated with ONT operations in both 2015 and 2020. LAWA consulted with the City of Ontario Planning Department who confirmed that Hofer Ranch is classified as commercial property in terms of the land use designations for purposes of Part 150. It is identified on the maps with blue crosshatching.

3.2.2 Residential land uses and population within the noise contours

Estimates of existing population and future population trends within the study area are an essential part of the Part 150 process. These estimates provide a basis for examining the effects of existing airport operations, as well as noise abatement alternatives. When quantified, an assessment of the relative impacts of various alternatives on existing and projected population and households provide one means to measure the effectiveness of such alternatives. The analysis of the growth of population and households in the study area, particularly in areas that may be more significantly impacted by aircraft noise, is also important in identifying land use and noise mitigation strategies.

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. The FAA considers all land uses to be compatible with aircraft-related CNEL below 65 dB.

In order to estimate the number of people residing within the noise contours, existing parcel boundary land use maps were overlaid on 2010 US Census TIGER file maps that depict the smallest Census enumeration unit. "Populated Area" data polygons were then created by combining Census blocks with the residential land use concentrating population and housing unit values into the residential portion of the census block where people actually live. For example, in some areas the population is concentrated along the road rather than over several square miles of open or undeveloped land.

Using Geographic Information Systems (GIS) tools, the noise contours were intersected with these "Residential/Census" data for each CNEL noise contour 5-dB interval. The resulting wholly or partially encompassed Residential/Census areas were then identified; the proportion of total area within the contour level was then calculated to determine the estimated residential population and housing unit counts ascribed to that level as shown in Table 16.

Table 16 – Estimated Residential Population within 2015 and 2020 CNEL Contours
Source: HMMH

Noise Level, CNEL	Existing Contours - 2015		Forecast Contours - 2020	
	Estimated Population	Estimated Number of Housing Units	Estimated Population	Estimated Number of Housing Units
65-70 dB	0	0	0	0
70-75 dB	0	0	0	0
75+ dB	0	0	0	0
Total	0	0	0	0

One of the recommended and approved measures of the 1990 NCP (5-3b, summarized in Appendix B) provided for acoustical treatment, purchase assurance, and neighborhood enhancement of developed, incompatible land. As of December 31, 2013, the City has provided noise mitigation to 1,745 dwelling units of which 316 units were purchased and 1,429 units received sound insulation treatments resulting in those properties being compatible with aircraft noise exposure levels.

The objective of the land acquisition program is to acquire residential dwelling units within the CNEL 65 dB and higher contours, relocate the affected residents to quieter neighborhoods, and open up the prospect of replacing the residential units with compatible uses. The goal is to prevent an incompatible use from recurring.

The objective of the Residential Sound Insulation Program (RSIP) is to provide interior noise levels compatible with normal indoor activities for those residential uses not acquired by the Airport that lie within the CNEL 65 dB or higher contours. Sound attenuation treatments typically include installation of acoustical windows, doors, and other modifications to reduce the transmission of aircraft noise into the living spaces. Participation in the RSIP is voluntary. Those residential units located inside the FAA-approved CNEL 65 dB contour may be eligible for the program, subject to the availability of annual AIP appropriations by the FAA. The goals of the program are to provide an interior aircraft noise environment not to exceed CNEL 45 dB indoors and provide a noticeable improvement, which is at least a 5 dB increase in noise level reduction of the structure. Upon completion of the construction and verification of goal attainment, the soundproofed residential units would then be considered compatible with the aircraft noise exposure levels.

Table 17 and Table 18 present the total number of residential or noise-sensitive parcels, parcels mitigated through the acoustical treatment programs or land acquisition, and those parcels remaining as incompatible in each of the 5-dB CNEL intervals for 2015 and 2020, respectively.

Table 17 – Compatibility Analysis Results by Parcel Within 2015 (Existing Conditions) Noise Contours
Source: HMMH

Noise Compatibility by Parcel			
Noise Level, CNEL	Total Parcels	Compatible Parcels	Incompatible Parcels
		Noise Mitigated	
65-70 dB	8	8	0
70-75 dB	0	0	0
75+ dB	0	0	0

Table 18 – Compatibility Analysis Results by Parcel Within 2020 (Future Conditions) Noise Contours
Source: HMMH

Noise Compatibility by Parcel			
Noise Level, CNEL	Total Parcels	Compatible Parcels	Incompatible Parcels
		Noise Mitigated	
65-70 dB	11	11	0
70-75 dB	0	0	0
75+ dB	0	0	0

As the tables above show, there are no incompatible residential land uses or population within the CNEL 65 dB or higher contours in the updated NEMs.

Figures 13 and 14 show the various noise mitigated parcels, in relation to the 2015 and 2020 CNEL contours, that have been a part of the Airport's noise mitigation program that included both sound insulating residences and purchasing properties to remove any incompatible land uses.

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4 PUBLIC CONSULTATION

LAWA considered it essential to involve the interested stakeholders, including the public, throughout the NEM Update and has employed a number of methods to ensure such involvement.

During the project, LAWA staff provided periodic briefings about the NEM update to the LA/Ontario International Airport Noise Advisory Committee (OANAC) to help keep the residential community at ONT apprised of the project. OANAC is a community forum that is comprised of representatives from the City of Ontario, residents of the surrounding community, the FAA, the airlines, and the airport; and is designed to address concerns regarding aircraft noise at ONT. Copies of relevant OANAC meeting agendas, meeting recaps, and presentations are provided in Appendix L.

The public consultation program for this NEM Update was open to the general public and included an informal public workshop/meeting at the outset of the project in May 2014 and a second workshop/meeting in March 2015 to review the process and the results. Public consultation activities and announcement of opportunities to provide input are summarized in Section 4.1. Several options were available to community members to submit comments, including submitting comments at the public workshops, via email, US mail, or by phone. In addition, a list of Frequently Asked Questions with regard to the Part 150 process at ONT was provided on the project website and is included as reference in Appendix L. LAWA also provided materials in Spanish such as press releases, workshop notifications, handouts, and presentations. A professional translator was available to provide English-to-Spanish/Spanish-to-English translations at each of the workshops in an effort to help the Spanish-speaking community understand the project and interact with the project team.

The project team consulted with representatives from the airlines, the FAA, and the airport to obtain current information related to aircraft operations, specific projects and plans at ONT when developing the NEM to ensure the thoroughness and accuracy of data in determining aircraft noise levels for the ONT NEM update. This information included aircraft fleet mix, operational levels, runway construction projects, and other relevant information. The consultation with said representatives provided the project team with additional information to supplement the data already received from other aviation sources as noted in Section 2.1.2.1. A memorandum summarizing the discussion of these consultation meetings is provided in Appendix L.

LAWA consulted with the City of Ontario (Ontario) during the preliminary stages and throughout the NEM update. In January 2013, LAWA invited the Housing Manager of the Ontario Quiet Home Program (QHP) to participate in the procurement process to select the most qualified firm to assist LAWA with the project. The Housing Manager was part of a panel of five reviewers responsible for reviewing and evaluating written proposals of three noise consulting firms in June 2013. The procurement process resulted in the selection of Harris Miller and Miller Hanson, Inc. as the most qualified firm to assist with this project.

LAWA and the project team met via teleconference (May 13, 2014) with the Ontario QHP staff and the Planning Department staff to review the Noise Compatibility Program (NCP) implementation based on the recommended measures from the 1990 NCP. This consultation provided valuable insight into the noise mitigation measures implemented and was beneficial for updating the status of the NCP measures as provided in Appendix B. LAWA coordinated with the QHP office in June 2014 to determine the latest information and data on the sound insulated parcels, which assisted the team in developing the base map with up-to-date parcel-level information. LAWA also consulted with the Ontario Planning Department on November 18, 2014 to obtain clarification of the land use classification for Hofer Ranch, listed on the National Register of Historic Places.

LAWA and Ontario have worked together in managing the funding allocation for the QHP over the last 20 years, and LAWA has met with the QHP staff to discuss the status of the QHP and to provide updates on the NEM project. At a meeting on November 18, 2014, LAWA shared the preliminary draft NEMs with Ontario staff, which showed that the updated noise contours were much smaller than those in the previously approved NEMs.

4.1 Public Workshop 1

The initial public workshop was held May 1, 2014 in the conference room at the Airport Administrative Offices on the south side of the Airport. This first of two scheduled public workshops was designed to introduce the Part 150 process and study to the public and receive any concerns and comments on the process. An American Translators Association (ATA) certified English-to-Spanish translator provided Spanish translations of the presentation and then assisted as necessary to facilitate interaction between Spanish-speaking residents and the project team. The following sections provide some details on the project initiation and notification, information presented, attendees, and comments received. Supplemental, detailed material is included in Appendix L.

4.1.1 Public notification

LAWA staff developed an initial list of over 300 potentially interested community groups, organizations, and businesses. LAWA mailed postcards (Appendix L) announcing the workshop/meeting and project website to these entities, which included:

- State and local government officials
- Community groups to include chambers of commerce, business and philanthropic organizations, various media outlets, and places of worship
- FAA officials and aeronautical users and maintenance providers at the airport
- Airport commercial support companies such as rental cars, taxis, hotels, etc.

Appendix L shows a listing of the specific groups that received the postcard announcement.

In addition to the post card distribution, newspaper advertisements and press releases in both English and Spanish were used to broaden the notification to include those communities most interested in ONT operations (Appendix L). The ONT NEM project website[29] also publicized the start of the NEM Update and the public involvement process.

4.1.2 Information disseminated

The purpose of the initial workshop was to introduce the Part 150 process, what it includes, the various roles and responsibilities, the project schedule, and how the public can be involved in the process. The workshop consisted of three information stations, a brief presentation to provide background information, and a comment table for written comments. Appendix L displays the materials related to this public workshop including copies of the presentation boards at each station, the presentation slides, handouts, attendance logs, and any public comments received. Links to the presentation and handouts were also included on the project website to make the information available to those not able to attend.

[29] http://www.lawa.org/ONTPart150.aspx

4.1.3 Public comment process

LAWA welcomed public comments on the project through the public comment table provided at the public workshop as well as by three additional means provided on the project website:

- Email: ontpart150nemupdate@lawa.org
- Toll-Free Comment Hotline: 1-855-279-4698
- Mail:
  LA/Ontario International Airport NEM Update Comments
  c/o David Chan
  Los Angeles World Airports
  Environmental Services Division
  P.O. Box 92216
  Los Angeles, CA 90009-2216

All comments that were received are included in Appendix L and were filed with the FAA Regional Airports Division Manager.

4.2 Public Workshop 2

The second public workshop was held March 19, 2015 in the conference room at the Airport Administrative Offices on the south side of the Airport. This workshop was designed to review the ONT Part 150 NEM Update process and NEM contour development with the public, provide the updated NEMs for 2015 and 2020, and ensure that every interested party had the opportunity to obtain information on the NEM Update and provide comments. As was the case for the first workshop, An American Translators Association (ATA) certified English-to-Spanish translator provided Spanish translations of the presentation and then assisted as necessary to facilitate interaction between Spanish-speaking residents and the project team. The following sections provide some details on the notification, information presented, attendees, and comments received. Supplemental, detailed material is included in Appendix L.

4.2.1 Public notification

LAWA used the same notification procedures as for the initial workshop. LAWA updated the original mailing list for the post card announcement, which was sent to over 300 specific agencies, organizations, and businesses as listed in Appendix L. These post cards were also made available to the public at the De Anza Community and Teen Center in the City of Ontario.

LAWA also provided newspaper advertisements and press releases in both English and Spanish announcing the workshop and locations for public review of the document (Appendix L). The ONT NEM project website[30] also provided information on the workshop and directions to the location.

4.2.2 Information disseminated

The purpose of the second workshop was to ensure that all interested parties had an opportunity to review the NEM Update process and documentation. The workshop consisted of three information stations, a brief presentation to provide background information and the results, and a comment table for attendees to provide written comments. Appendix L displays the materials related to this public workshop to include copies of the presentation boards at each station, the presentation slides, handouts, attendance logs, and

[30] http://www.lawa.org/ONTPart150.aspx

any public comments received. Links to the presentation and handouts were also included on the project website immediately after the workshop to make the information available to those not able to attend.

4.2.3 Public comment process

LAWA encouraged and provided means for public comments throughout the project via the resources publicized at the initial workshop and on the website:

- Email: ontpart150nemupdate@lawa.org
- Toll-Free Comment Hotline: 1-855-279-4698
- Mail:
  LA/Ontario International Airport NEM Update Comments
  c/o David Chan
  Los Angeles World Airports
  Environmental Services Division
  P.O. Box 92216
  Los Angeles, CA 90009-2216

All comments that were received are included in Appendix L and were filed with the FAA Regional Airports Division Manager.

4.3 Public Input Received during the Public Comment Period

The draft documentation was available for public review from March 10, 2015 through May 11, 2015 at the following locations[31]:

- Ovitt Family Community Library
  215 East C Street
  Ontario, CA 91764
- LA/Ontario International Airport Administrative Office
  1923 E. Avion Avenue
  Ontario, CA 91761
- Ontario Quiet Home Program Office
  Ontario Housing and Municipal Services
  208 W. Emporia Street, 2nd Floor
  Ontario, CA 91762
- Colony High Branch Library
  3850 East Riverside Drive
  Ontario, CA 91761

The draft documents were also available on the project website: http://www.lawa.org/ONTPart150.aspx

The document availability provided opportunity for the interested public to review and submit comments in accordance with Part 150 §150.21(b). All public comments received during the review period and at the public workshops are included in Appendix L and were filed with the FAA Regional Airports Division Manager.

[31] The public review was extended for an additional 31 days at the request of the City of Ontario. See Appendix L.5.6.