14 CFR Part 150 Noise Compatibility Program Study Update

Charlotte Douglas International Airport

DRAFT – August 2024

PREPARED FOR
Charlotte Douglas International Airport

PRESENTED BY
Landrum & Brown, Incorporated

August 5, 2024

Peggy Kelley
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard, Suite 2250
Memphis, TN 38118

Dear Mrs. Kelley,

Enclosed please find one (1) copy of the Draft Part 150 Study Update document for the update to the Noise Exposure Maps (NEMs) and Noise Compatibility Program (NCP) for the Charlotte Douglas International Airport (CLT). Copies of the full-size Draft Noise Exposure Maps (NEMs) and supplemental graphics are included in a pocket in the back of Volume 2 of the enclosed draft document.

The Draft NEMs include the Existing (2023) NEM and Future (2028) NEM/NCP, which are an update to NEMs previously found in compliance by FAA. As stated in this document, the Existing (2023) NEM is based on data for a timeframe other than the year of submission. Comparison of the Existing (2023) NEM against current conditions demonstrates the airport layout, runway use percentages, flight tracks, general aircraft mix, operational data, and noncompatible land uses represent current conditions. The Future (2028) NEM/NCP is based on reasonable forecasts and planning assumptions developed for the airport. Furthermore, several existing NCP measures have been recommended for removal or have been modified, and new noise abatement, land use compatibility, and land use mitigation measures have also been recommended in the 2024 NCP that will require FAA approval. As such, the Future (2028) NEM/NCP is reflective of the forecast operating conditions for 2028 with the implementation of the 2024 NCP.

A notification of availability of this document and public hearing opportunity will be published in local newspapers. Public Information Meetings/Public Hearings are scheduled to be held on Wednesday, September 18, 2024 from 6:00 p.m. to 8:00 p.m. at Goodwill Opportunity Campus, 5301 Wilkinson Blvd, Charlotte, NC 2820; and on Thursday, September 19, 2024, from 6:00 p.m. to 8:00 p.m. at Embassy Suites by Hilton Charlotte, 4800 South Tryon Street, Charlotte, NC 28217.

Sincerely,

Jack Christine

PO Box 19066
Charlotte, NC 28219
P. 704.359.4000
cltairport.com

STATEMENT OF CERTIFICATION AND PUBLIC NOTIFICATION

The Existing (2023) and Future (2028) Noise Exposure Maps (NEMs); the Noise Compatibility Program (NCP); and accompanying documentation for the Charlotte Douglas International Airport, are submitted in accordance with 14 CFR Part 150. To the best of my knowledge and belief, the NEMs were prepared with the best available information and are hereby certified as true, complete, and representative of the existing and future noise levels, under penalty of 18 U.S.C. 1001.

The proposed NCP was prepared in consultation with local public and planning agencies whose area or any portion of whose area of jurisdiction is within the 65 Day-Night Average Sound Level (DNL) contour depicted on the NEM and might be affected by any recommended measures. The consultation also included Federal and local officials having oversight responsibility and regular aeronautic users of the Airport. The proposed NCP includes recommended measures by the City of Charlotte and not by a consultant or other third party.

Interested persons have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft NEMs, descriptions of the forecast of aircraft operations, the formulation and adequacy of the NCP, and the supporting documentation.

_____ Date _____

Marcus D. Jones
City Manager
City of Charlotte

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
I. Submitting And Identifying The NEM:		
A. Submission is properly identified:		
1. 14 C.F.R. Part 150 NEM?	No	N/A
2. NEM and NCP together?	Yes	Letter of Transmittal
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?	Yes	Letter of Transmittal
B. Airport and Airport Operator's name are identified?	Yes	Letter of Transmittal, Chapter 1, page 1-1
C. NCP is transmitted by airport operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?	Yes	Letter of Transmittal
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?	Yes	Chapter 1 (pages 1-4 to 1-6), and Appendix F, *Public Involvement*
B. Identification of consulted parties:		
1. Are the consulted parties identified?	Yes	Chapter 1 (pages 1-4 to 1-6), and Appendix F
2. Do they include all those required by 150.21(b) and A150.105(a)?	Yes	Chapter 1 (pages 1-4 to 1-6), and Appendix F
3. Agencies in 2., above, correspond to those indicated on the NEM?	Yes	Chapter 1 (pages 1-4 to 1-6), and Appendix F
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)?	Yes	Sponsor's Certification and Appendix F
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?	Yes (Ongoing)	Appendix F will include all comments received on the Draft Part 150, as well as responses to those comments.

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
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)?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map
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?	No	Letter of Transmittal
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?	No	Letter of Transmittal
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?	Yes	Chapter 3, page 3-1; Chapter 3, page 3-5; Appendix C, page C-39; and Appendix G
C. If the NEM and NCP are submitted together:		
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?	Yes	Letter of Transmittal, Chapter 4, page 4-99
2. If the forecast year map is based on program implementation:		
a. are the specific program measures that are reflected on the map identified?	Yes	Chapter 4, pages 4-66 to 4-98
b. does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?	Yes	Chapter 4, pages 4-66 to 4-98

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
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	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 not be less than 1" to 2,000'), and is the scale indicated on the maps?	Yes	The official Existing (2023) Noise Exposure Map, Future (2028) Noise Exposure Map, and supporting flight track maps are located in the back pocket of Volume 2 of this document.
B. Is the quality of the graphics such that required information is clear and readable?	Yes	The official Existing (2023) Noise Exposure Map, Future (2028) Noise Exposure Map, and supporting flight track maps are located in the back pocket of Volume 2 of this document.
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?	Yes	
a. Airport boundaries	Yes	
b. Runway configurations with runway end numbers	Yes	
2. Does the depiction of the off-airport data include?		
a. A land use base map depicting streets and other identifiable geographic features	Yes	
b. The area within the DNL 65 dB (or beyond, at local discretion)	Yes	

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
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)	Yes	
D. 1. Continuous contours for at least the DNL 65, 70, and 75 dB?	Yes	
2. Has the local land use jurisdiction(s) adopted a lower local standard and if so, has the sponsor depicted this on the NEMs?	No	N/A
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?	Yes	Letter of Transmittal
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?	Yes	Appendix C, Exhibits C-11 to C-17, and Exhibits C-23 to C-28
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map as the official NEMs)	Yes	Appendix B, Exhibit B-1
G. Noncompatible land use identification:		
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the maps?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map; Appendix D
2. Are noise sensitive public buildings and historic properties identified?	Yes	Appendix D, Exhibit D-3
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map; Chapter 3

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
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?	Yes	Chapter 3, Appendix C
2. Are the underlying technical data and planning assumptions reasonable?	Yes	Chapter 3, Appendix C
B. Calculation of Noise Contours:		
1. Is the methodology indicated?		
a. Is it FAA approved?	Yes	Chapter 3, Appendix C
b. Was the same model used for both maps?	Yes	Chapter 3, Appendix C
c. Has AEE approval been obtained for use of a model other than those which have previous blanket FAA approval?	N/A	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?	No	N/A
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?	N/A	N/A
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	Yes	Appendix B, page B-1
4. For noise contours below DNL 65 dB, does the supporting documentation include an explanation of local reasons?	N/A	N/A
C. Noncompatible Land Use Identification:		
1. Does the narrative 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?	Yes	Chapter 3, page 3-4; Chapter 4, page 4-99

Noise Exposure Map (NEM) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	Yes	Appendix A
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	N/A
(2) Does the narrative include the airport operator's complete substitution for Table 1?	N/A	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 sources?	N/A	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	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?	Yes	Chapter 3, Section 3.2, and Chapter 4, Sections 4.4.2 and 4.4.3
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?	Yes	Sponsor's Statement of Certification and Public Notification; Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map
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. § 1001?	Yes	Sponsor's Statement of Certification and Public Notification

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
I. SUBMITTING AND IDENTIFYING THE NCP:		
A. Submission is properly identified:		
1. 14 CFR Part 150 NCP?	Yes	Letter of Transmittal
2. NEM and NCP together?	Yes	Letter of Transmittal
3. Program revision? (To what extent has it been revised?)	Yes	Letter of Transmittal
B. Airport and Airport sponsor's name are identified?	Yes	Letter of Transmittal, Chapter 1, page 1-1
C. NCP transmitted by airport sponsor's cover letter?	Yes	Letter of Transmittal
II. CONSULTATION (INCLUDING PUBLIC PARTICIPATION): [150.23]		
A. Documentation includes narrative of public participation and consultation process?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
B. Identification of consulted parties:		
1. All parties in 150.23(c) consulted?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
2. Public and planning agencies identified?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
3. Agencies in 2., above, correspond to those affected by the NEM noise contours?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
C. Satisfies 150.23(d) requirements by:		
1. Documentation shows active and direct participation of parties in B., above?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
2. Active and direct participation of general public and opportunity to submit their views, data, and comments on the formulation and adequacy of the NCP?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
3. Participation was prior to and during development of NCP and prior to submittal to FAA?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
4. Indicates adequate opportunity afforded to all consulted parties to submit views, data, etc.?	Yes	Chapter 1, pages 1-4 to 1-6, and Appendix F
D. Evidence is included there was notice and opportunity for a public hearing on the final NCP?	Pending	Appendix F will include a copy of the public hearing notice.

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
E. Documentation of comments:		
1. Includes summary of public hearing comments, if hearing was held?	Pending	Appendix F will include any public comments received on the Draft Part 150 Study Update.
2. Includes copy of all written material submitted to operator?	Pending	Appendix F
3. Includes operator's responses / disposition of written and verbal comments?	Pending	Appendix F will contain the responses to comments received on the Draft Part 150 Study Update.
F. Is there written evidence from the appropriate office within the FAA that the sponsor received informal agreement to carry out proposed flight procedures?	Pending	Pending
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] ***(This section of the checklist is not a substitute for the Noise Exposure Map checklist. It deals with maps in the context of the Noise Compatibility Program submission.)***		
A. Inclusion of NEMs and supporting documentation:		
1. Map documentation either included or incorporated by reference?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map
2. Maps previously found in compliance by FAA?	Yes	Letter of Transmittal
3. FAA's compliance determination still valid?	Yes	Letter of Transmittal
4. Does 180-day period have to wait for map compliance finding?	Yes	None
B. Revised NEMs submitted with program: (Review using NEM checklist if map revisions included in NCP submittal. Report the applicable findings in the spaces below after a full review using the NEM checklist and narrative.)		
1. Revised NEMs included with program?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
2. Has airport sponsor requested in writing that FAA make a determination on the NEM(s), showing NCP measures in place, when NCP approval is made?	Yes	Letter of Transmittal
C. If program analysis uses noise modeling:		
1. AEDT or FAA-approved equivalent?	Yes	Appendix C
2. Monitoring in accordance with A150.5?	Yes	Appendix B
D. One existing condition and one forecast-year map clearly identified as the official NEMs?	Yes	Existing (2023) Noise Exposure Map and Future (2028) Noise Exposure Map
IV. CONSIDERATION OF ALTERNATIVES: [B150.7, 150.23(e)]		
A. At a minimum, were the alternatives below considered, or if they were rejected was the reason for rejection reasonable and based on accurate technical information and local circumstances?		
1. Land acquisition and interests therein, including air rights, easements, and development rights?	Yes	Chapter 4 and Appendix E
2. Barriers, acoustical shielding, public building soundproofing	Yes	Chapter 4 and Appendix E
3. Preferential runway system	Yes	Chapter 4 and Appendix E
4. Voluntary flight procedures	Yes	Chapter 4 and Appendix E
5. Restrictions described in B150.7 (taking into account Part 161 requirements)		
a. deny use based on Federal standards	No	N/A
b. capacity limits based on noisiness	No	N/A
c. noise abatement takeoff/approach procedures	Yes	Chapter 4 and Appendix E
d. landing fees based on noise or time of day	No	N/A
e. nighttime restrictions	No	N/A
6. Other actions with beneficial impact not listed in the regulation	Yes	Chapter 4 and Appendix E
7. Other FAA recommendations	No	N/A
B. Responsible implementing authority identified for each considered alternative?	Yes	Chapter 4
C. Analysis of alternative measures:		
1. Measures clearly described?	Yes	Chapter 4 and Appendix E

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
2. Measures adequately analyzed?	Yes	Chapter 4 and Appendix E
3. Adequate reasoning for rejecting alternatives?	Yes	Chapter 4 and Appendix E
D. Other actions recommended by the FAA: As the FAA staff person familiar with the local airport circumstances, determine whether other actions should be added? (List separately, or on back, actions and describe discussions with airport sponsor to have them included prior to the start of the 180-day cycle. New measures recommended by the airport sponsor must meet applicable public participation and consultation with officials before they can be submitted to the FAA for action. See E., below.)	No	N/A
V. ALTERNATIVES RECOMMENDED FOR IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5]		
A. Document clearly indicates:		
1. Alternatives that are recommended for implementation?	Yes	Chapter 4 and Appendix E
2. Final recommendations are airport sponsor's, not those of consultant or third party?	Yes	Letter of Transmittal
B. Do all program recommendations:		
1. Relate directly or indirectly to reduction of noise and noncompatible land uses?	Yes	Chapter 4 and Appendix E
2. Contain description of each measure's relative contribution to overall effectiveness of program?	Yes	Chapter 4 and Appendix E
3. Noise/land use benefits quantified to extent possible to be quantified?	Yes	Chapter 4 and Appendix E
4. Does each alternative include actual/anticipated effect on reducing noise exposure within noncompatible area shown on NEM?	Yes	Chapter 4 and Appendix E
5. Effects based on relevant and reasonable expressed assumptions?	Yes	Chapter 4 and Appendix E
6. Does the document have adequate supporting data that the measure contributes to noise/land use compatibility?	Yes	Chapter 4 and Appendix E

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

	Yes / No / N/A	Page No. / Other Reference
C. Analysis appears to support program standards set forth in 150.35(b) and B150.5?	Yes	Chapter 4 and Appendix E
D. When use restrictions are recommended for approval by the FAA:		
1. Does (or could) the restriction affect Stage 2 or Stage 3 aircraft operations (regardless of whether they presently operate at the airport)? (If the restriction affects Stage 2 helicopters, Part 161 also applies.)	N/A	N/A
2. If the answer to D.1 is yes, has the airport sponsor completed the Part 161 process and received FAA Part 161 approval for a restriction affecting Stage 3 aircraft? Is the FAA's approval documented? For restrictions affecting only Stage 2 aircraft, has the airport sponsor successfully completed the Stage 2 analysis and consultation process required by Part 161 and met the regulatory requirements, and is there evidenced by letter from FAA stating this fact?	N/A	N/A
3. Are non-restrictive alternatives with potentially significant noise/compatible land use benefits thoroughly analyzed so that appropriate comparisons and conclusions among all alternatives can be made?	N/A	N/A
4. Did the FAA regional or ADO reviewer coordinate the use restriction with APP-400 prior to making determination on start of 180-days?	N/A	N/A
E. Do the following also meet Part 150 analytical standards:		
1. Recommendations that continue existing practices and that are submitted for FAA re-approval?	Yes	Chapter 4 and Appendix E
2. New recommendations or changes proposed at end of Part 150 process?	Yes	Chapter 4 and Appendix E
F. Documentation indicates how recommendations may change previously adopted noise compatibility plans, programs, or measures?	Yes	Chapter 4 and Appendix E

Noise Compatibility Program (NCP) Checklist

AIRPORT NAME: Charlotte Douglas International Airport REVIEWER: _____

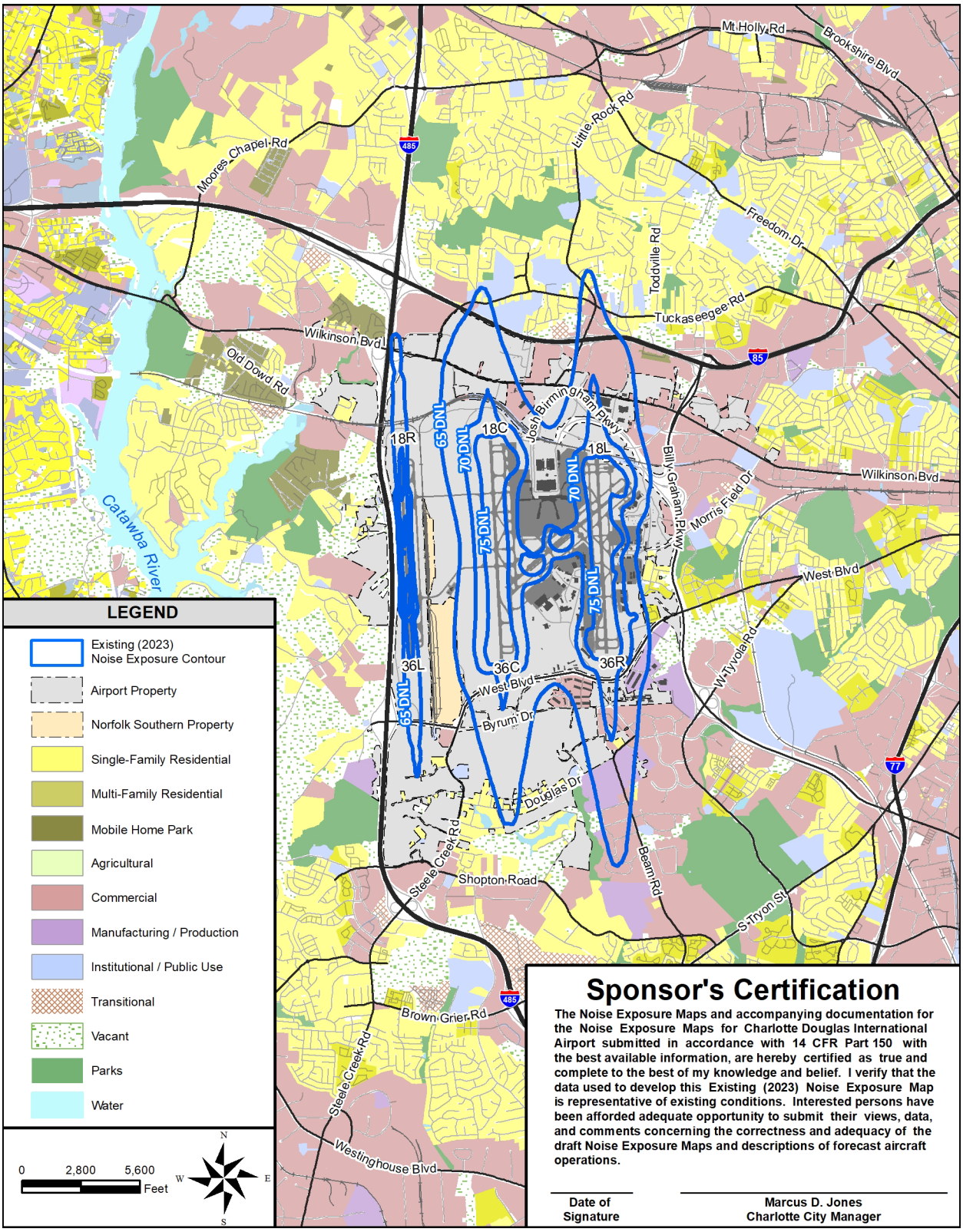
	Yes / No / N/A	Page No. / Other Reference
G. Documentation also:		
1. Identifies agencies that are responsible for implementing each recommendation?	Yes	Chapter 4
2. Indicates whether those agencies have agreed to implement?	Yes	Chapter 4
3. Indicates essential government actions necessary to implement recommendations.	Yes	Chapter 4
H. Timeframe:		
1. Includes agreed-upon schedule to implement alternatives?	Yes	Chapter 4, page 4-102
2. Indicates period covered by the program?	Yes	Chapter 4, page 4-102
I. Funding/Costs:		
1. Includes costs to implement alternatives?	Yes	Chapter 4, page 4-101
2. Includes anticipated funding sources?	Yes	Chapter 4, Section 4.4.3
VI. PROGRAM REVISION: [150.23(e)(9)] Supporting documentation includes provision for revision?	Yes	Chapter 4

OFFICIAL NOISE EXPOSURE MAPS

The following pages contain small-scale representations of the official NEMs for Existing (2023) and Future (2028) conditions and supporting maps for the Charlotte Douglas International Airport. The official NEMs and supplemental maps, at a scale of 1 inch equals 2,000 feet, are included at the back of this document.

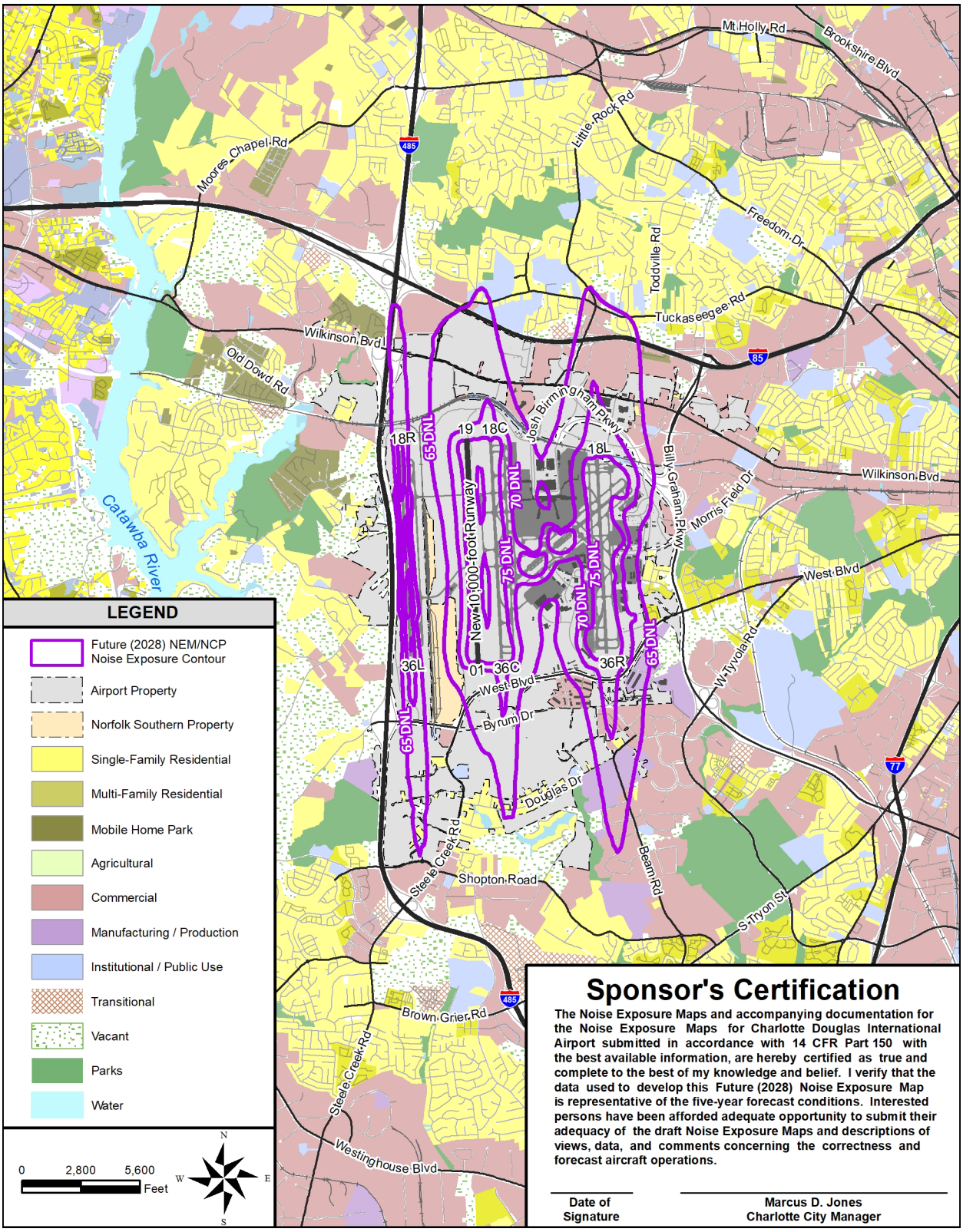
The Existing (2023) NEM is based on data developed between 2021 and 2023. Based on the latest activity data for the Airport, the Existing (2023) NEM continues to be a reasonable representation of current conditions. The Future (2028) NEM/NCP is based on an FAA-approved forecast and planning assumptions that were prepared for this Part 150 Study, is reflective of the implementation of the NCP, and continues to be a reasonable representation of noise conditions in the future.

Exhibit NEM-1 Existing (2023) Noise Exposure Map



Source: Landrum & Brown, 2024.

Exhibit NEM-2 Future (2028) Noise Exposure Map/Noise Compatibility Program



Source: Landrum & Brown, 2024.

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LIST OF EXHIBITS

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GLOSSARY

Airport Improvement Program (AIP) – A Federal funding program for airport improvements. AIP is periodically reauthorized by Congress with funding appropriated from the Aviation Trust Fund. Proceeds to the Trust Fund are derived from excise taxes on airline tickets, aviation fuel, etc.

Airport Layout Plan (ALP) – A scaled drawing of existing and proposed land and facilities necessary for the operation and development of the airport. The ALP shows boundaries and proposed additions to all areas owned or controlled by the airport operator for airport purposes, the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed non-aviation areas and improvements thereon.

Airport operations – Landings (arrivals) and takeoffs (departures) from an airport.

Air Traffic Control Tower (ATCT) – The airport traffic control facility located on an airport that is responsible for traffic separation within the immediate vicinity of the airport and on the surface of the airport to provide for safe and efficient flow of aircraft.

Air Traffic Control (ATC) – A service operated to promote the safe, orderly, and expeditious flow of air traffic.

Ambient noise – The total sum of noise from all sources in a given place and time.

Attenuation – Acoustical phenomenon whereby sound energy is reduced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, other natural features, and man-made features (e.g., sound insulation).

Aviation Environmental Design Tool (AEDT) – FAA developed software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences.

A-weighted sound (dBA) – A system for measuring sound energy that is designed to represent the response of the human ear to sound. Energy at frequencies more readily detected by the human ear is more heavily weighted in the measurement, while frequencies less well detected are assigned lower weights. A-weighted sound measurements are commonly used in studies where the human response to sound is the object of the analysis.

Baseline Condition – The existing condition or conditions prior to future development or the enactment of additional noise abatement procedures, which serve as a foundation for analysis.

Commuter aircraft – Commuters are commercial operators that provide regularly scheduled passenger or cargo service with aircraft seating less than 60 passengers. A typical commuter flight operates over a trip distance of less than 300 miles.

Connecting passenger – An airline passenger who transfers from an arriving aircraft to a departing aircraft in order to reach his or her ultimate destination.

Crosswind leg – A flight path at right angles to the approach runway end off of its upwind end.

Day-night average sound level (DNL) – A noise measure used to describe the average sound level over a 24-hour period, typically an average day over the course of a year. In computing DNL, an extra weight of 10 decibels is assigned to noise occurring between the hours of 10:00 p.m. and 7:00 a.m. to account for increased annoyance when ambient noise levels are lower and people are trying to sleep. DNL may be determined for individual locations or expressed in noise contours.

Decibel (dB) – Sound is measured by its pressure or energy in terms of decibels. The decibel scale is logarithmic. A ten-decibel increase in sound is equal to a tenfold increase in sound energy.

DGPS antenna – Differential Global Positioning System is a way to correct the various inaccuracies in the GPS system by placing a reference antenna on a point that has been accurately surveyed. This antenna receives the same GPS signals as an aircraft but corrects the GPS signal for any inaccuracies.

Displaced Threshold – A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold may be available for takeoffs in both directions and landings from the opposite direction.

Distance measuring equipment (DME) – A flight instrument that measures the line-of-sight distance of an aircraft from a navigational radio station in nautical miles.

Easement – The legal right of one party to use part of the rights of a piece of real estate belonging to another party. This may include, but is not limited to, the right of passage over, on or below the property; certain air rights above the property, including view rights; and the rights to any specified form of development or activity.

Enplanements – The number of passengers boarding an aircraft at an airport. Does not include arriving or through passengers.

Environmental Assessment (EA) – A concise document that assesses the environmental impacts of a proposed Federal Action. It discusses the need for, and environmental impacts of, the proposed action and alternatives. An environmental assessment should provide sufficient evidence and analysis for a Federal determination whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). Public participation and consultation with other Federal, state, and local agencies is a cornerstone of the EA process.

Environmental Impact Statement (EIS) – An EIS is a document that provides a discussion of the significant environmental impacts which would occur as a result of a proposed project, and informs decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts. Public participation and consultation with other Federal, state, and local agencies is a cornerstone of the EIS process.

Equivalent sound level (Leq) – The average A-weighted sound level over any specified time period.

Federal Aviation Administration (FAA) – The FAA is the Federal agency responsible for insuring the safe and efficient use of the nation's airspace, for fostering civil aeronautics and air commerce, and for supporting the requirements of national defense. The activities required to carry out these responsibilities include: safety regulations; airspace management and the establishment, operation, and maintenance of a system of air traffic control and navigation facilities; research and development in support of the fostering of a national system of airports, promulgation of standards and specifications for civil airports, and administration of Federal grants-in-aid for developing public airports; various joint and cooperative activities with the Department of Defense; and technical assistance (under State Department auspices) to other countries.

Federal Aviation Regulations (FAR) – The body of Federal regulations relating to aviation. Published as Title 14 of the Code of Federal Regulations.

Final approach – A flight path that follows the extended runway centerline. It usually extends from the base leg to the runway.

Finding of No Significant Impact (FONSI) – If, following the preparation of an environmental assessment, the Federal agency determines a proposed project will not result in any significant environmental impact, a finding of no significant impact (FONSI) is issued by the Federal Agency. A FONSI is a document briefly explaining the reasons why an action will not have a significant effect on the human environment and for which an EIS, therefore, is not necessary.

Fixed-base operator (FBO) – A business located on the airport that provides services such as hangar space, fuel, flight training, repair, and maintenance to airport users.

Flight track utilization – The use of established routes for arrival and departure by aircraft to and from the runways at the airport.

FMS/GPS – Flight Management System/Global Positioning System equipment onboard an aircraft takes advantage of various radio navigation and/or GPS routes to guide the aircraft.

Geographic Information Systems (GIS) – An information system that is designed for storing, integrating, manipulating, analyzing, and displaying data referenced by spatial or geographic coordinates.

Global Positioning System (GPS) – A system of 24 satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude. The accuracy of the system can be further refined by using a ground receiver at a known location to calculate the error in the satellite range data. This is known as differential GPS (DGPS).

Hub – An airport that services airlines that have hubbing operations.

Hubbing – A method of airline scheduling that times the arrival and departure of several aircraft in a close period of time in order to allow the transfer of passengers between different flights of the same airline in order to reach their ultimate destination. Several airlines may conduct hubbing operations at an airport.

Instrument Landing System (ILS) – An electronic system installed at some airports which helps to guide pilots to runways for landing during periods of limited visibility or adverse weather.

Instrument meteorological conditions (IMC) – Weather conditions expressed in terms of visibility, distance from clouds, and cloud ceilings during which all aircraft are required to operate using instrument flight rules (IFR).

Land use compatibility – The ability of land uses surrounding the airport to coexist with airport-related activities with minimum conflict.

Landing and takeoff (LTO) cycle – The time that an aircraft is in operation at or near an airport. An LTO cycle begins when an aircraft starts its final approach (arrival) and ends after the aircraft has made its climb-out (departure).

Ldn – See **DNL**. Ldn is used in place of DNL in mathematical equations only.

Leq – Equivalent Sound Level. The steady A-weighted sound level over any specified period of time (not necessarily 24 hours) that has the same acoustic energy as the fluctuating noise during that period (with no consideration of nighttime weighting). It is a measure of cumulative acoustical energy. Because the time interval may vary, it should be specified by a subscript (such as Leq_8 for an 8-hour exposure to noise) or be clearly understood from the context.

Local passenger – A passenger who either enters or exits a metropolitan area on flights serviced by the area's airport. A local passenger is the opposite of a connecting passenger.

Localizer – The component of an ILS which provides lateral course guidance to the runway.

Loudness – The subjective assessment of the intensity of sound.

Missed approach – A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at an airport.

Narrow-body aircraft – A commercial passenger jet having a single aisle and maximum of three seats on each side of the aisle. Common narrow-body aircraft include A320, B717, B727, B737, B757, DC9, MD80, and MD90.

National Environmental Policy Act of 1969 (NEPA) – The original legislation establishing the environmental review process for proposed Federal actions.

Nautical mile – A measure of distance equal to one minute of arc on the earth's surface (6,076.1 feet or 1,852 meters).

Noise abatement – A measure or action that minimizes the amount of impact of noise on the environs of an airport. Noise abatement measures include aircraft operating procedures and use or disuse of certain runways or flight tracks.

Noise berm – A manmade soil structure designed to interrupt the direct transmission of noise from a source to a noise-sensitive area.

Noise contour – A map feature representing average annual noise levels summarized by lines connecting points of equal noise exposure.

Noise Compatibility Program (NCP) – Program developed in accordance with FAR Part 150 guidance that contains provisions for the abatement of aircraft noise through aircraft operating procedures, air traffic control procedures, or airport facility modifications. It also includes provisions for land use compatibility planning and may include actions to mitigate the impact of noise on incompatible land uses and recommendations for amending local land use controls to affect future land uses and development. The program must contain provisions for updating and periodic revision.

Noise Compatibility Study – The process, methods, and procedures provided in the FAR Part 150 guidance to develop a Noise Compatibility Program, including the development of noise exposure maps, a noise compatibility program, and public participation.

Noise Exposure Map (NEM) – A geographic depiction of an airport, its noise contours for existing conditions and as forecast for five years in the future, and surrounding area developed in accordance with FAR Part 150 guidance. Documentation of the Noise Exposure Maps must include airport operating characteristics for existing conditions and all reasonable and foreseeable airport operating characteristics for the future condition.

Operation – A takeoff or landing by an aircraft.

Positive control – The separation of all air traffic within designated airspace as directed by air traffic controllers.

Primary Runway – The runway on which the majority of operations take place.

Profile – The position of the aircraft during an approach or departure in terms of altitude above the runway and distance from the runway end.

Propagation – Sound propagation is the spreading or radiating of sound energy from the noise source. It usually involves a reduction in sound energy with increased distance from the source. Atmospheric conditions, terrain, natural objects, and manmade objects affect sound propagation.

Run-up – A routine procedure for testing aircraft systems by running one or more engines at a high power setting. Engine run-ups are normally conducted by airline maintenance personnel checking an engine or other on board systems following maintenance.

Runway Protection Zone (RPZ) – An area, trapezoidal in shape and centered about the extended runway centerline, designated to enhance the safety of aircraft operations. It begins 200 feet (60 M) beyond the end of the area usable for takeoff or landing. The RPZ dimensions are functions of the aircraft, type of operation and visibility minimums. (Formerly known as the clear zone).

Runway threshold – The beginning of that portion of the runway usable for landing.

Runway use program – A noise abatement runway selection plan crafted to further noise abatement efforts for communities around airports. A runway selection plan is developed into a runway use program. It typically applies to all turbojet aircraft 12,500 pounds or heavier. Turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. These programs are coordinated with the FAA in accordance with FAA Order 8400.9, *National Safety and Operational Criteria for Runway Use Programs*, and are administered as either “formal” or “informal” programs.

> **Formal** – An approved runway use program outlined in a Letter of Understanding between the FAA–Flight Standards, FAA–Air Traffic Service, the airport proprietor, and the users. It is mandatory for aircraft operators and pilots as provided for in FAR Section 91.87.
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> **Informal** – An approved runway use program that does not require a Letter of Understanding. Participation in the program by aircraft operators and pilots is voluntary.

Single event – One noise event. For many kinds of analysis, the sound from single events is expressed using the Sound Exposure Level (SEL) metric.

Sound – Sound is the result of vibration in the air. The vibration produces alternating bands of relatively dense and sparse particles of air, spreading outward from the source in the same way as ripples do on water after a stone is thrown into it. The result of the movement is fluctuation in the normal atmospheric pressure or sound waves.

Sound exposure level (SEL) – A standardized measure of a single sound event, expressed in A-weighted decibels, that takes into account all sound above a specified threshold set at least 10 decibels below the maximum level. All sound energy in the event is integrated over one second.

Through passenger – An airline passenger who arrives at an airport and departs without deplaning the aircraft.

Time Above (TA) – The amount of time that sound exceeds a given decibel level during a 24-hour period (e.g., time in minutes that the sound level is above 75 dBA).

Very High Frequency Omnidirectional Range (VOR) Station – A ground-based radio navigation aid transmitting signals in all directions. A VOR provides azimuth guidance to pilots by reception of electronic signals.

Visual approach – An approach conducted on an IFR flight plan, which authorizes the pilot to proceed visually and clear of clouds to the airport.

Visual flight rules (VFR) – Rules and procedures specified in 14 CFR 91 for aircraft operations under visual conditions. Aircraft operations under VFR are not generally under positive control by ATC. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate a type of flight plan.

Visual meteorological conditions (VMC) – Weather conditions expressed in terms of visibility, distance from cloud, and cloud ceiling equal to or greater than those specified in 14 CFR 91.155 for aircraft operations under Visual Flight Rules (VFR).

Wide-body aircraft - A commercial jet with a wingspan generally greater than 155 feet and, in passenger configuration, having two aisles with 8 to 11 seats across in a row. Common wide-body aircraft include the A300, A310, B747, B767, B777, DC-10, and MD-11.

Yearly Day-Night Average Sound Level – see DNL