

Noise Exposure Map Update Noise Compatibility Program Revision San Antonio International Airport



October 21, 2014

- **What is a Noise Exposure Map?**
- **Airport Noise Terminology**
- **Updated SAT Noise Exposure Map**
- **History of Noise Compatibility Program at SAT**
- **Noise Reduction Achieved at SAT**
- **Noise Compatibility Program Revision**
- **Project Schedule**
- **Public Comments**



What is a Noise Exposure Map?

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- **Code of Federal Regulations (14 CFR) Part 150, “Airport Noise Compatibility Planning”**
 - Voluntary federal program
 - Over 250 airports have participated
 - Sets national standards for analysis
 - Provides access to federal funding
 - Aids in obtaining FAA implementation assistance
- **Two principal technical elements**
 - Noise Exposure Map (NEM)
 - Noise Compatibility Program (NCP)



What is a Noise Exposure Map?

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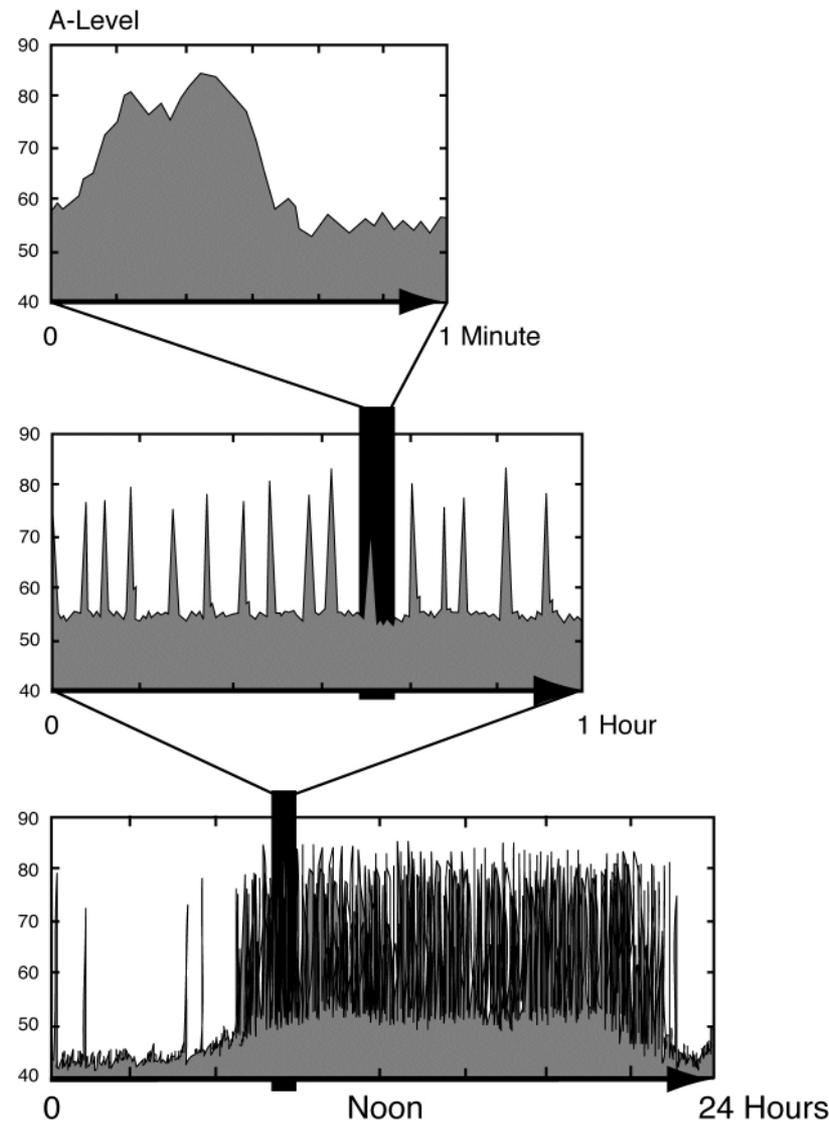
- **The NEM describe:**
 - Airport layout and operation
 - Aircraft related noise exposure
 - Land uses in the airport environs
 - Noise/land use compatibility situation
- **NEM must provide information for two timeframes**
 - Year of submission (2014)
 - Five-year forecast (2019)
- **Annual noise exposure depicted using “contours”**



Airport Noise Terminology

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- Noise – “unwanted sound”
- The decibel, dB
- A-weighted decibel
- Maximum A-weighted sound level, L_{max}
- Sound Exposure Level, SEL
- Day-Night Average Sound Level, DNL



Updated SAT Noise Exposure Map Process

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- Reviewed existing Noise Compatibility Program
- Processed aircraft flight track and identification data
- Used the FAA's Terminal Area Forecast (TAF)
- Compared historical permanent noise monitor measurement data to modeled results
- Obtained FAA approval for aircraft substitutions
- Produced existing and future noise exposure contours using the FAA approved noise model
 - Integrated Noise Model (INM) Version 7.0d



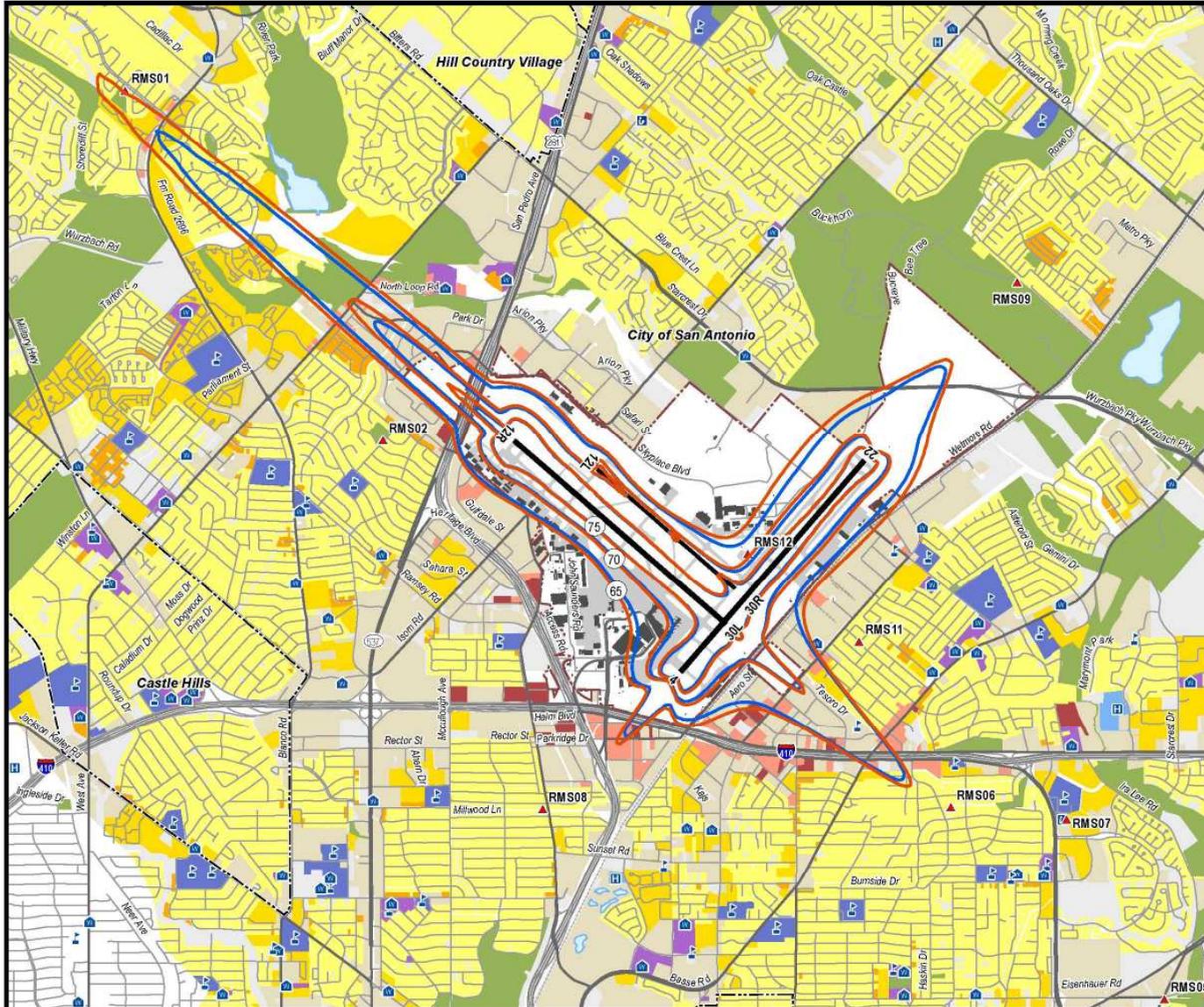
Updated SAT Noise Exposure Map

Results: 2014 and 2019 Noise Contours

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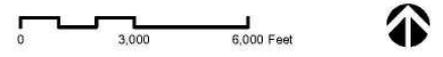


Figure 12
Comparison of Existing (2014) and
Forecast (2019) Noise Exposure Maps



- Existing (2014) DNL Contour
- Forecast (2019) DNL Contour
- ▲ Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Residential Use
- Condo / Townhouse
- Multi-Family Residential Use
- Transient Lodging
- School / Library
- Hospital
- Water
- Place of Worship
- Recreational / Open Space
- Agricultural
- Commercial Use
- Industrial Use
- Vacant / Undefined
- S School
- L Library
- W Place of Worship
- H Hospital

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Updated SAT Noise Exposure Map

Results: Measured Noise Compares Well

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Contour Area	Noise Monitor	Measured 5-year Average DNL	Measured 2013 DNL	Modeled 2014 DNL	Difference
Northwest	RMS01	63.0 dB	62.8 dB	63.7 dB	w/in 1 dB
Southeast	RMS06	64.2 dB	63.6 dB	63.5 dB	w/in 1 dB
Northeast	RMS09	61.5 dB	60.1 dB	62.7 dB	1-2 dB high
Southwest	RMS08	56.1 dB	53.2 dB	59.7 dB	3-6 dB high

■ Summary

- Very good agreement between measured and modeled annual-average DNL for the Runway 12/30 complex
- Conservatively high modeled annual-average DNL for Runway 4/22 complex



History of Noise Compatibility Program at SAT

What is a Noise Compatibility Program?

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- The NCP describes measures for implementation to improve compatibility of aircraft noise and land uses within the airport environs
- NCP reviews previous measures and provides analysis for new measures
- The NCP documentation includes
 - Development of the program
 - Description of all measures
 - Reasons for accepting/rejecting each measure
 - Implementation status and funding of each measure



History of Noise Compatibility Program at SAT

Summary

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- **Chapter 2 of the NEM provides the NCP history, which in summary includes:**
 - 11 measures recommended in the original NCP in 1990
 - FAA approved all 11 measures
 - Amendment to modify two NCP measures in 1996
 - FAA approved amendment
 - 11 noise abatement measures and 4 noise mitigation measures recommended in the full NCP update in 2001
 - FAA approved 4 of the 11 noise abatement measures and all 4 noise mitigation measures
 - Amendment to update the NEM year for two noise mitigation measures in 2009
 - FAA approved amendment



Noise Reduction Achieved at SAT 2004, 2009 and 2014 NEM Update Results

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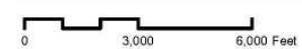


Comparison of Noise Exposure Maps Forecast Year Contours

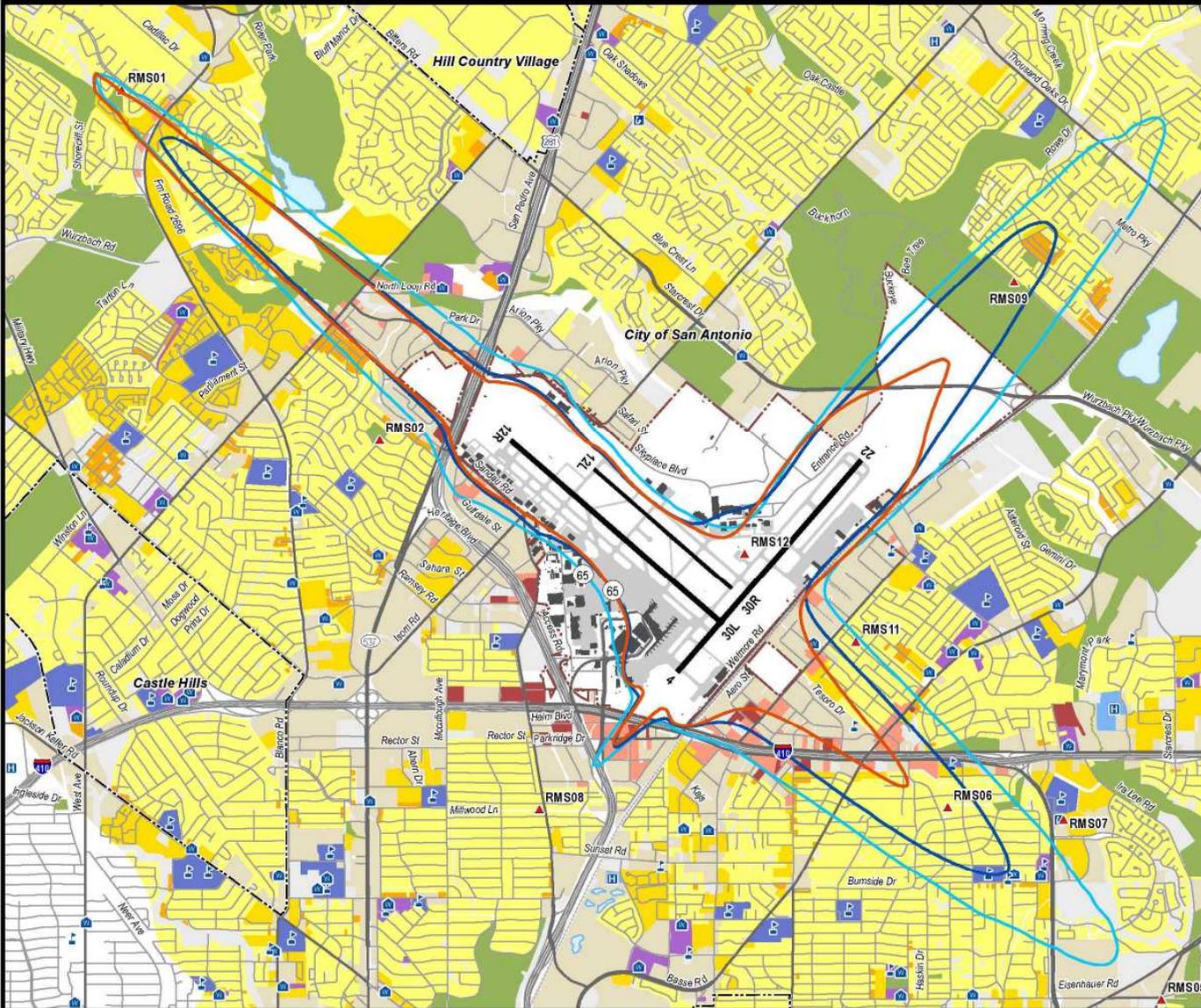
- Forecast (2019) 65dB DNL Contour - HMMH 2014 NEM (2146.9 Acres)
- Forecast (2014) 65dB DNL Contour - Wyle 2009 NEM (2530.0 Acres)
- Forecast (2004) 65dB DNL Contour - Ricondo 2002 NEM (4287.4 Acres)
- Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Residential Use
- Place of Worship
- Recreational / Open Space
- Condo / Townhouse
- Agricultural Use
- Multi-family Residential Use
- Commercial Use
- School / Library
- Industrial Use
- Hospital
- Vacant / Undefined
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- School
- Library
- Place of Worship
- Hospital

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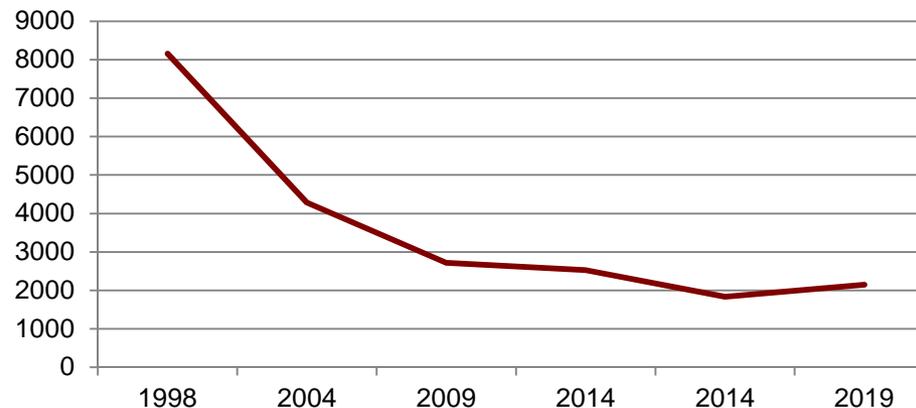
Noise Reduction Achieved at SAT

Smaller Area of Incompatible Land Uses

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- **Aircraft noise exposure continues to decrease at SAT**
 - The City uses the 65 dB DNL contour for land use guidelines and eligibility for noise mitigation measures
 - “the noise contour”
 - Since 1998, the noise contour has decreased in size (acres) by 75%

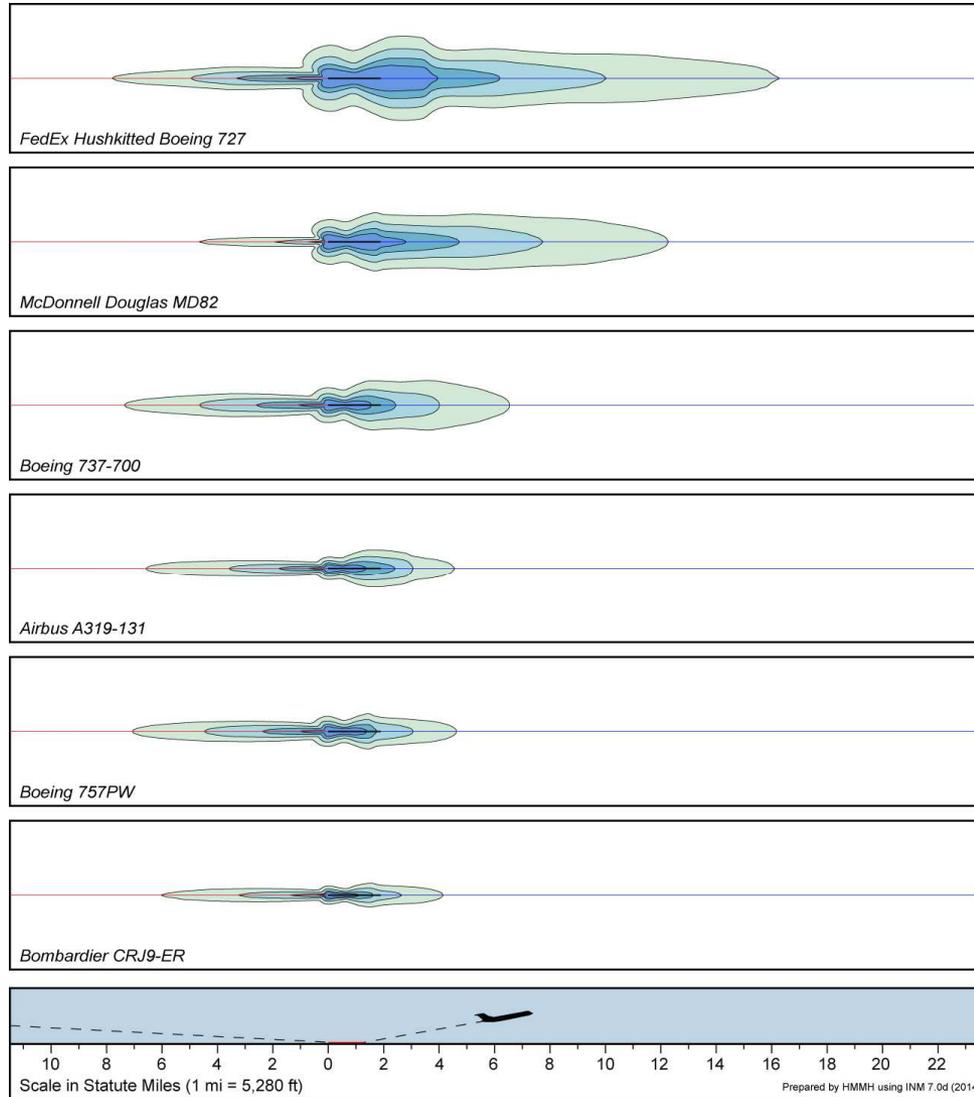
65 dB DNL Contour Size in Acres



Noise Reduction Achieved at SAT

Reasons for Reduction – Quieter Aircraft

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SEL 95 SEL 90 SEL 85 SEL 80

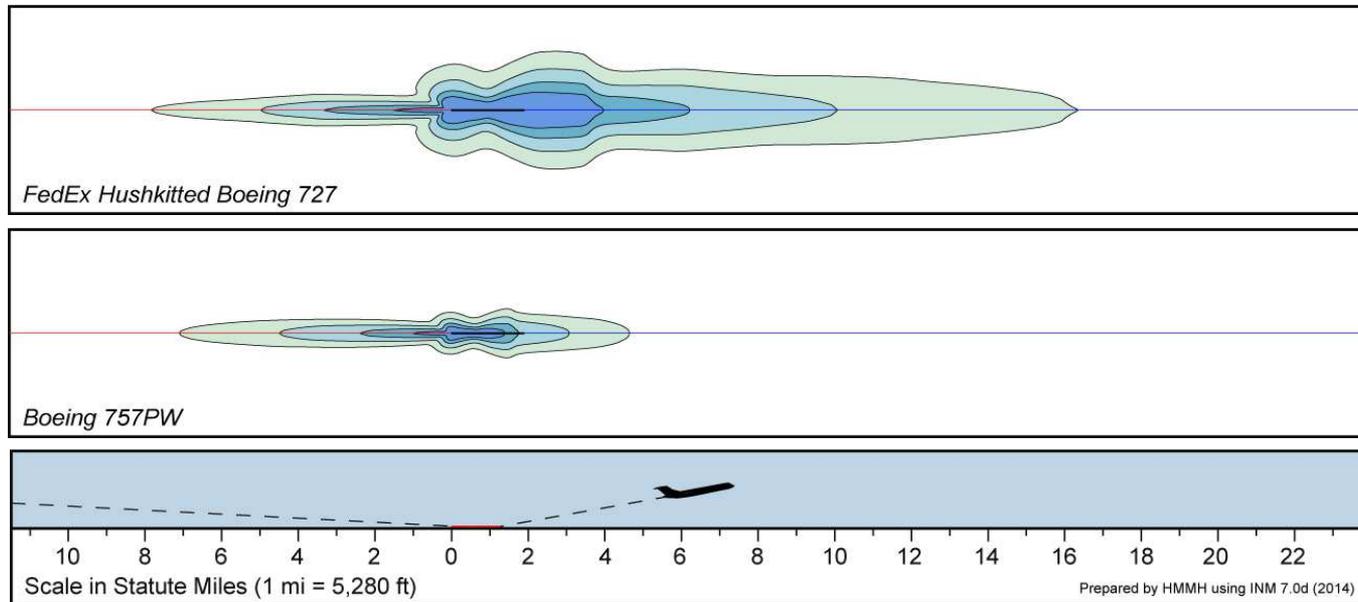


Noise Reduction Achieved at SAT

Reasons for Reduction – Quieter Aircraft

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- Quieter aircraft fleet is the predominant catalyst
 - The most recent change at SAT is the FedEx retirement of their Boeing 727 aircraft with a much quieter Boeing 757



SEL 95 SEL 90 SEL 85 SEL 80



Noise Reduction Achieved at SAT

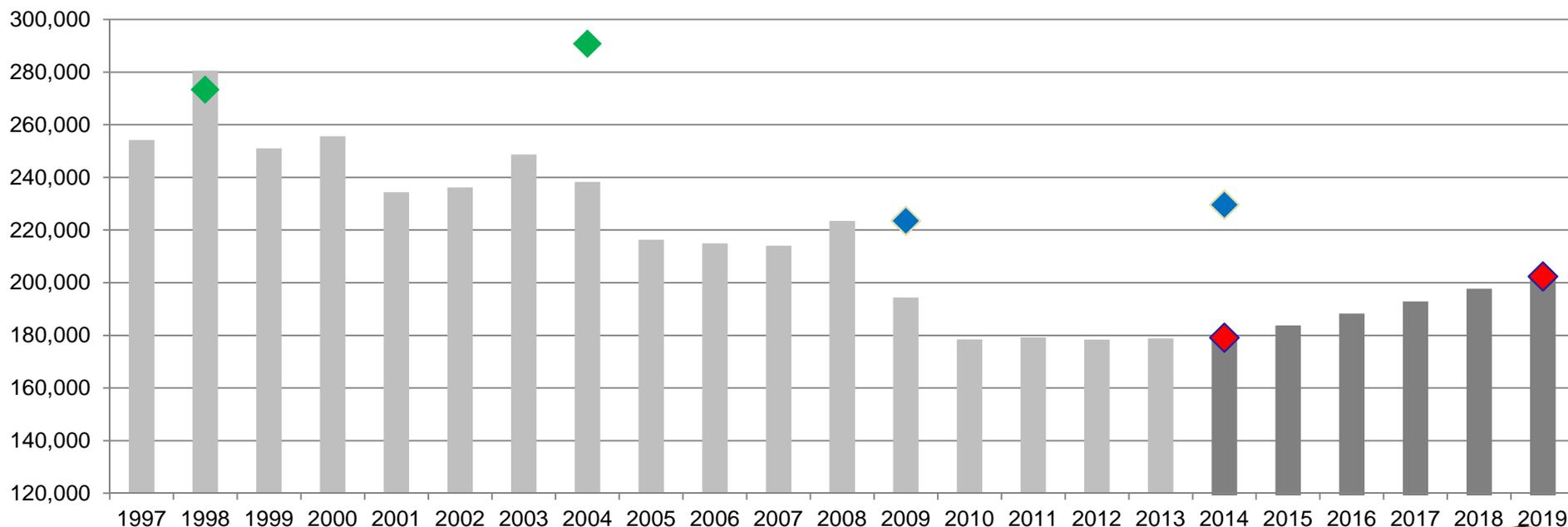
Reasons for Reduction – Fewer Operations

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- Aircraft operations have declined at SAT
 - Over 30% reduction since 1998

SAT Annual Aircraft Operations 1997 - 2019

■ ATADS ■ TAF ◆ 2002 NEM ◆ 2009 NEM ◆ 2014 NEM



Noise Reduction Achieved at SAT

Reasons for Reduction – NCP Implementation

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- Encouraged operators to use quieter aircraft and promoted the retirement of noisier Stage 2 aircraft
- 2001 – Tested noise abatement departure procedures
- 2002 – Installation and successful implementation of the GRE operation plan
- 2010 – Final installation of the noise and operations monitoring system (NOMS)
- 2013 – Extension of Runway 4/22



Noise Compatibility Program Revision

Current NCP Noise Abatement Measures

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- **NA-1: Conduct live tests of noise abatement departure profiles**
 - FAA disapproved, SAAS completed in 2001
 - No revision proposed
- **NA-2: Pursue additional voluntary noise abatement procedures to further reduce noise levels of aircraft operations**
 - FAA approved
 - No revision proposed
- **NA-3: Establish a preferential runway use program and enhance its effectiveness by extending existing runways**
 - FAA disapproved, partially implemented in 2013
 - No revision proposed



Noise Compatibility Program Revision

Current NCP Noise Abatement Measures

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- **NA-4: For departures from Runway 3, establish a departure corridor that places aircraft over compatible land uses east of Wetmore Road to the extent possible**
 - FAA disapproved
 - No revision proposed

- **NA-5: For those times that Runway 21 must be used for departure, establish a departure corridor that places aircraft over the Highway 281 corridor to the extent possible**
 - FAA disapproved
 - No revision proposed

- **NA-6: Incorporate the findings and recommendations of the engine run-up study into the FAR Part 150 Noise Compatibility Program (NCP)**
 - FAA approved, City completed in 2002
 - No revision proposed



Noise Compatibility Program Revision

Current NCP Noise Abatement Measures

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- **NA-7: Install an aircraft noise and operations monitoring system to track the use of departure corridors and departure profiles**
 - FAA approved, City completed installation in 2010
 - No revision proposed

- **NA-8: Enhance pilot awareness of noise-sensitive areas and noise abatement procedures by providing information for Jeppesen charts, airline pilot manuals, and fixed base operator information**
 - FAA approved, City instituted a pilot awareness program
 - No revision proposed

- **NA-9: Investigate the use of noise barriers along Airport boundaries at runway ends to reduce the effects of takeoff roll noise**
 - FAA disapproved
 - No revision proposed



Noise Compatibility Program Revision

Current NCP Noise Abatement Measures

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- **NA-10: Encourage Congress to seek stricter aircraft noise standards, particularly regarding a phase-out schedule for aircraft originally manufactured as Stage 2 that have been modified or are operated to meet Stage 3 noise standards**
 - FAA disapproved, measure partially completed through aircraft retirements
 - No revision proposed
- **NA-11: Encourage the FAA to develop a phase-out schedule for FAR Part 36 Stage 2 aircraft weighing less than 75,000 pounds**
 - FAA disapproved, measure partially completed through Congressional action
 - No revision proposed



Noise Compatibility Program Revision

Current NCP Noise Mitigation Measures

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- **NM-1: Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)**
 - FAA approved, City implemented for 1,423 homes and 216 apartment units
 - Revision proposed to remove reliance on particular year of NEM

- **NM-2: Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)**
 - FAA approved, City implemented for 32 public use facilities
 - Revision proposed to remove reliance on particular year of NEM



Noise Compatibility Program Revision

Current NCP Noise Mitigation Measures

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- **NM-3: Study the mechanism for and impact of incorporating noise exposure acknowledgements into real estate transactions**
 - FAA approved, City reviewed process with State requirements
 - No revision proposed

- **NM-4: Study mechanism to maintain compatible land uses in current and proposed flight corridors and to prevent development of additional incompatible noise sensitive land uses in areas exposed to DNL 65 and higher**
 - FAA approved, City implemented in 2010 via the San Antonio International Airport Vicinity Land Use Plan
 - No revision proposed



Noise Compatibility Program Revision

Current NCP Program Measures

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- No program measures included in the current NCP
- The original NCP program measures implemented by the City included
 - Establishing a noise abatement officer staff position
 - Currently held by Steven Southers, Environmental Stewardship Manager
 - Installing a system to perform ongoing noise monitoring
 - EnvironmentalVue is currently installed and operational
 - Flight track and aircraft identification data
 - 12 fixed noise monitors
 - Developing a procedure for the investigation and recording of noise complaints



Noise Compatibility Program Revision

Purpose for Revision

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- **The City expects to continue providing noise mitigation to properties (as federal funding is available) that:**
 - Are within the eligibility noise contour (65 dB DNL)
 - Meet all federal eligibility requirements for noise mitigation

- **Noise compatibility successes at SAT include:**
 - Residential Acoustical Treatment Program
 - 1,423 homes and 216 apartment units
 - Acoustic treatment for schools and religious facilities
 - 10 schools, 19 religious facilities, 1 library and 2 nursing homes
 - San Antonio International Airport Vicinity Land Use Plan
 - Requires the Aviation Department to review and recommend approval/disapproval requests for rezoning within the Airport Awareness Zone



Noise Compatibility Program Revision

Purpose for Revision

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- **484 noise sensitive parcels exist within the SAT noise contour as provided in the 2019 Noise Exposure Map**
 - 205 of those parcels are compatible as they have received sound insulation treatments
 - 47 of those parcels are compatible (not eligible for sound insulation treatment) as they were built after October 1, 1998
 - 232 of those parcels are potentially eligible for noise mitigation through the Residential Acoustical Treatment Program (RATP)



Noise Compatibility Program Revision

Proposed Revision to Noise Mitigation Measure 1

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- **Existing measure from 2009 NEM (NM-1):**

Continue the Residential Acoustical Treatment Program within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

- **Proposed measure in 2014 NEM (NM-1):**

Continue the Residential Acoustical Treatment Program for structures exposed to aircraft noise DNL 65 dB and higher



Proposed Noise Compatibility Program Revision

Proposed Revision to Noise Mitigation Measure 2

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- **Existing measure from 2009 NEM (NM-2):**

Continue to provide acoustical treatment for schools and religious facilities that have not yet received such treatment and are within the Noise Mitigation Boundary shown in the San Antonio International Airport 2014 Noise Exposure Map (NEM)

- **Proposed measure in 2014 NEM (NM-2):**

Continue to provide acoustical treatment to noise-sensitive facilities exposed to aircraft noise of DNL 65 dB and higher



Project Schedule

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Date	Milestone
May 2014	Project commencement
May 2014	Met with airport users, SAAS and FAA ATCT staff
June 2014	Forecast aircraft operations and develop noise model inputs
July 2014	Draft Noise Compatibility Program review chapter
August 2014	Draft aircraft noise exposure contours
August 2014	Draft NEM update document
September - October 2014	30-day public comment period Public NEM Meeting/NCP Hearing
November 2014	Submit final NEM update document to FAA for acceptance



Public Comments Requested

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- **City is seeking public comment for:**
 - Noise Exposure Map (NEM) update
 - Noise Compatibility Program (NCP) revision
- **Options for submitting public comment include:**
 - **Court reporter**
 - Available to hear your oral comments
 - **Comment Cards**
 - Located at comment table to take written comments
 - Submit your written comments tonight or mail to:
Ximenes & Associates, Inc.
421 Sixth Street, Suite 1
San Antonio, TX 78215
- **Comment period closes October 23, 2014**



Return to Open House

Get Answers and Submit Comments Please

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- **Stations available to answer your questions on the 2014 Noise Exposure Map update for San Antonio International Airport**
 1. Noise Exposure Contours
2014 and 2019
Rhea Gundry
 2. NEM Background & Model Input
Bob Behr
 3. Noise Compatibility Program
Gene Reindel
 4. Residential Acoustical Treatment Program (RATP)
Cheryl Chamness
 5. Written Comments
Linda Ximenes
 6. Oral Comments
Court Reporter

Comment period closes October 23, 2014

