

**DOCUMENTING COMPLETED SOUND  
MITIGATION: TECHNICAL MEMO**

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# DOCUMENTING COMPLETED SOUND MITIGATION

## MARCH 2024

### EFFORTS TO DOCUMENT COMPLETED SOUND MITIGATION

The 2018 Joint Land Use Study contained a Land Use Analysis that analyzed changes in land use at the parcel level that occurred following the original, 2008 JLUS to see if compatibility improved following a focus on compatible development through the creation of the Naval Air Station Joint Reserve Base Fort Worth Regional Coordination Committee. Many of the parcels that had developed between 2005-2015 (the best dates to review pre- and post-RCC compatibility) were determined to be “compatible with sound attenuation,” meaning that if appropriate sound attenuation had been included when a structure was built then it would be considered compatible.

Both the City of Benbrook and the City of Fort Worth added zoning overlays that require appropriate sound attenuation for any development within the NAS JRB Fort Worth noise contours. Benbrook’s ordinance was approved in 2013 and the Fort Worth ordinance went into effect in 2016. At the time of the 2018 JLUS report, there was not time to determine whether the required sound attenuation had been completed on developed parcels, which is why even in Benbrook and Fort Worth any development in those areas was determined to be “compatible with sound attenuation.”

During a meeting of the RCC Technical Subcommittee, Benbrook and Fort Worth building officials gave presentations (**Appendix 1-2**) that confirmed that the cities had proper procedures to ensure that for buildings developed after the ordinances went into effect were built with the required sound attenuation. As the Land Use Analysis update to add 2020 land use data was performed during this grant period, a rule was established to show any parcel developed in Benbrook after 2013 and in Fort Worth after 2016 as simply “compatible” because the sound attenuation was complete.

**DOCUMENTING COMPLETED SOUND  
MITIGATION: APPENDIX 1**

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## “NAS” Overlay District

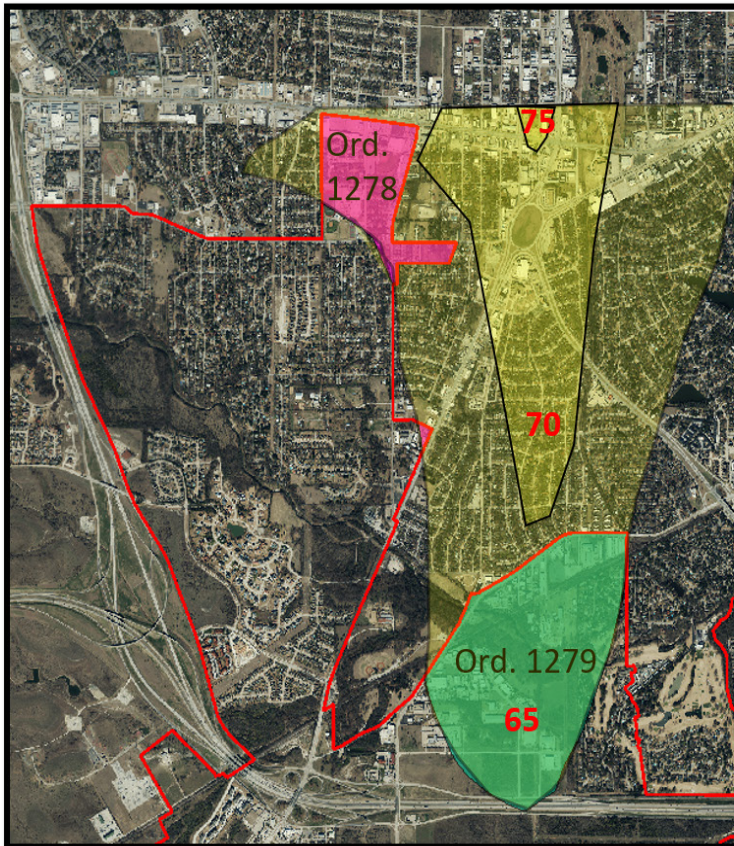
City of Benbrook

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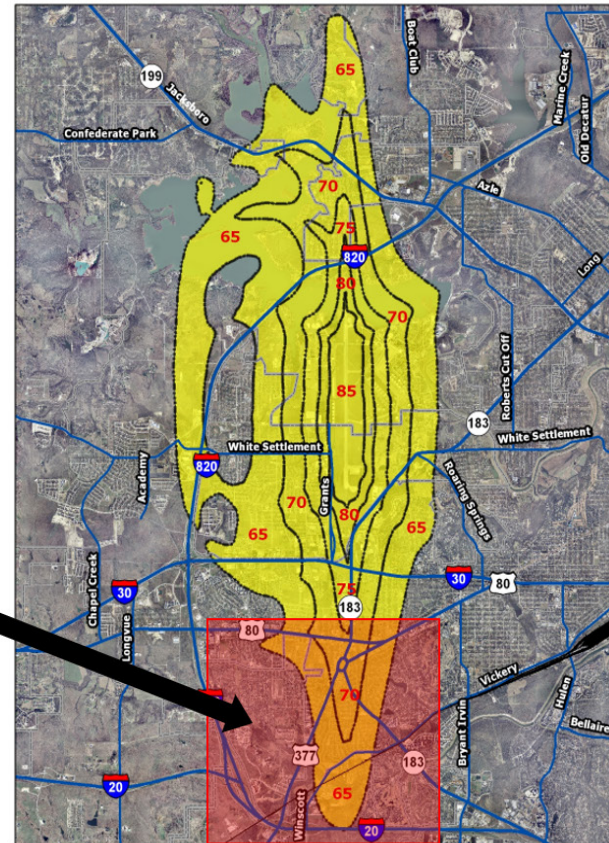
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### Benbrook "NAS" Overlay Districts

- Ord. 1278 adopted November 20, 2008
- Ord. 1279 adopted December 18, 2008



### "NAS" Noise Impact Area (original adopted version)



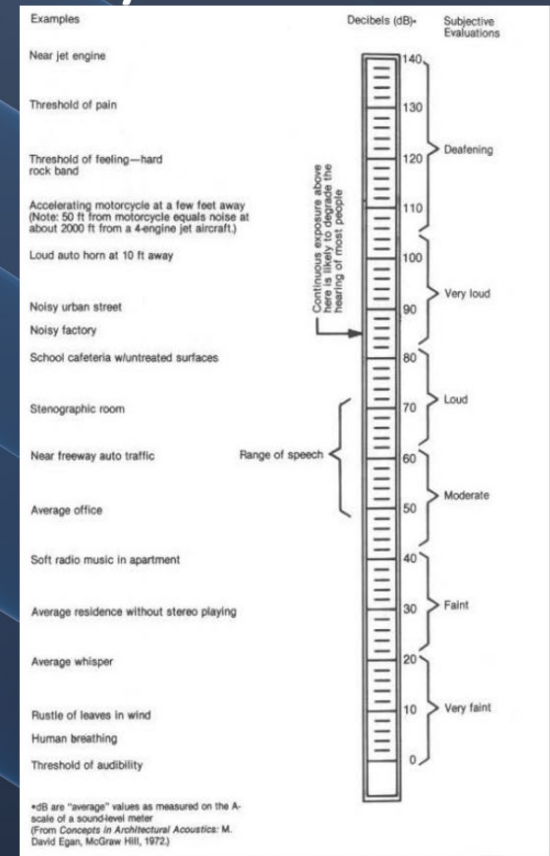


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### Purpose of “NAS” Overlay

To provide uses that are compatible with the aircraft operations at the Naval Air Station Fort Worth Joint Reserve Base (NAS FW JRB) on properties that may be affected by the day-night level (DNL) noise levels of 65 dB or greater, as determined by the Air Installation Compatible Use Zone (AICUZ) for the NAS FW JRB.



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### Permitted Uses

- Except residential, all uses allowed by underlying zoning are permitted
- Institutional and Civic uses must provide 25 dB reduction
  - Religious institutions
  - Schools
  - Colleges and Universities
  - Museums
  - Libraries
  - Fine art centers

### Prohibited Uses

- Single family dwellings\*
- Multiple family dwellings\*

**\*Exception:** Existing residentially zoned properties, in place at the time of ordinance adoption, can construct or reconstruct residential buildings provided they provide a minimum 30 dB reduction

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### How does Benbrook enforce the “NAS” Overlay ordinances?

- City has adopted the 2018 ICS Energy Code, which has established minimum building construction standards that have the potential to achieve a 30 dB sound reduction
- City requires one of the following methods of review
  - Performance Standard (commercial development)
  - Prescriptive Standard (one or two family residential development)



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## Performance Standard

City requires an architect or other design professional to provide construction plans and methods showing a minimum of 25 dB reduction

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### Prescriptive Standard

- Plan review and infield inspection
- Wall (standard construction)
  - Face brick exterior façade with 1/2" air space and metal ties
  - Tyvek (house wrap), 7/16 OSB sheathing, 2x4 stud (R-13) and ½" gypsum board
  - Double pane vinyl or window framed windows
  - Solid core wood or fiberglass/steel insulated exterior doors
- Roof (standard construction)
  - 30 year asphalt shingle w/tar paper
  - 7/16 OSB roof decking over 2 x 6 or greater roof framing (spray foam option)
  - R-38 ceiling insulation
  - ½ gypsum board

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Questions

**DOCUMENTING COMPLETED SOUND  
MITIGATION: APPENDIX 2**



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# Sound attenuation near NAS JRB Fort Worth

Presented by Evan Roberts

4/27/2022

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## History

- 2007 - City of Fort Worth adopts airport sound attenuation ordinance.
- 2011 - Requirements included as an appendix to our adoption of the 2009 International Building and Residential Codes
- 2017 - Requirements carried forward in our adoptions of the 2015 international Building and Residential Codes
- 2022 Requirements carried forward in our adoption of the 2021 International Building and Residential Code



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## Protected Uses

- Single-family, two-family, townhouse, multi-family, and Assisted Living uses, generally classified as Group R, whether in a single occupancy or mixed occupancy.
- Nursing homes and hospitals, generally classified as Group I; and
- Child day care centers, Adult day care centers and schools, generally classified as Group E and Group I-4.







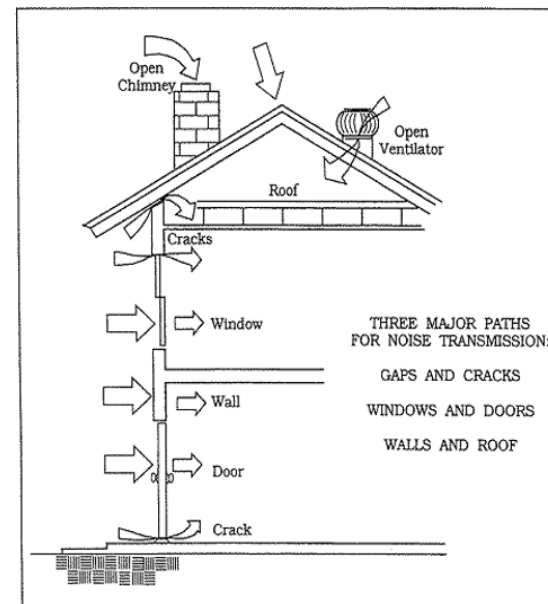
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## Regulated Building Elements

- Exterior Windows
- Exterior Doors
- Exterior Walls
- Roof Ceiling
- Floors (exposed to outside air)
- Ventilation
- Fireplaces



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## Compliance Methods

### Prescriptive compliance

- Applicant provides an *Airport Sound Construction Compliance Check Sheet* specifying assemblies from a prescribed list based on noise contour

### Performance compliance

- Applicant submits an acoustical design by an architect or engineer attesting to the 45 dB interior design

Table A2  
Exterior Windows

Option	Window	Contour allowed
Win 1a	All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 30 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283; or,	65 dB
Win 1b	shall be openable double glass thermopane windows meeting the requirements of the Energy Code.	
Win 2a	All fixed windows in the exterior walls shall be at least 1/4-inch thick and shall be set in non-hardening glazing materials; or,	65 dB
Win 2b	shall be fixed double glass thermopane windows meeting the requirements of the Energy Code.	
Win 3	All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 35 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.	70 dB
Win 4a	All fixed windows in the exterior walls of rooms shall: a. Have a laboratory sound transmission class rating of at least STC 35 dB, or	70 dB
Win 4b	b. Be 5/8-inch laminated glass with a laboratory sound transmission class rating of at least STC 35 dB and shall be set in non-hardening glazing materials, or	
Win 4c	c. Be glass block at least 3-1/2 inches thick.	
Win 5	All openable windows in the exterior walls shall have a laboratory sound transmission class rating of at least STC 40 dB and shall have air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.	75 dB or greater
Win 6a	All fixed windows in the exterior walls of rooms shall: a. Have a laboratory sound transmission class rating of at least STC 40 db, or	75 db or greater
Win 6b	b. Be 5/8-inch laminated glass with a laboratory sound transmission class rating of at least STC 40 db and shall be set in non-hardening glazing materials, or	
Win 6c	c. Be glass block at least 3-1/2 inches thick; or	

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Questions?

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Thank You

