

Peters, Joshua

From: Eric Fryer <efryer@dullesarea.com>
Sent: Wednesday, March 10, 2021 9:40 AM
To: Peters, Joshua
Cc: Amanda Brewer
Subject: [EXTERNAL] RE: Loudoun County Comprehensive Plan Amendment - Airport Impact Overlay District
Attachments: 3-Minneapolis_Airport_AircraftNoisePollutionSoundproofing_preview.pdf
Follow Up Flag: Follow up
Flag Status: Completed

Hi Joshua,

Thank you for your patience as we gathered the information you requested. Most of the studies and resources we were able to find pointed to a relatively negative correlation between noise counters and the values of homes within them. However, the difference in price appears to relatively depend on geographic location. As you will see below, for example (in item #3), homes in noise counters of 65 dB or more had an approximate 20% discount in sales price in Atlanta, Georgia (2008-2009). This is in comparison to homes near the Raleigh-Durham airport in North Carolina that had a < 3% reduction in sales price (2008).

With the help from [NAR's Research Department](#), here are some of the resources/studies we were able to come across:

1. Study by: [Federal Aviation Administration](#) (FAA) and Booz Allen. They found out that the noise impact is more pronounced in higher-priced areas and is hard to detect in relatively low-priced neighborhoods. However, the magnitude of this impact varies by airport. Please note the difference of the unadjusted value between a noisy and quiet neighborhood in the following examples:

BWI airport:

Table 3-2. Summary of Appraisal Approach Implemented at BWI

ITEM	Neighborhood		Difference	% Difference	Difference Per dB	% Differ. Per dB
	Noisy	Quiet				
DNL, dB	72	61	11	N.A.	N.A.	N.A.
Value (unadj.)	\$120,538	\$126,857	-\$6,319	-5.0%	-\$574	-0.45%
Value (adj.)	\$125,262	\$125,879	-\$617	-0.5%	-\$56	-0.04%

LAX airport:

**TABLE 3-5. Summary of Appraisal Approach Implemented at LAX:
Low-Priced Neighborhoods**

ITEM	Neighborhood		Difference	%	Difference Per dB	% Differ. Per dB
	Noisy	Quiet				
CNEL, dB	72	60	12	N.A.	N.A.	N.A.
Value (unadj.)	\$157,208	\$171,333	-\$14,125	-8.2%	-\$1,177	-0.69%
Value (adj.)	\$157,641	\$158,909	-\$1,268	-0.8%	-\$106	-0.07%

**TABLE 3-6. Summary of Appraisal Approach Implemented at LAX:
Moderately-Priced Neighborhoods**

ITEM	Neighborhood		Difference	%	Difference Per dB	% Differ. Per dB
	Noisy	Quiet				
CNEL, dB	69	55	14	N.A.	N.A.	N.A.
Value (unadj.)	\$321,750	\$380,375	-\$58,625	-15.4%	-\$4,188	-1.10%
Value (adj.)	\$326,692	\$387,565	-\$60,873	-15.7%	-\$4,348	-1.12%

JFK airport:

**TABLE 3-9. Summary of Appraisal Approach Implemented at JFK:
Low-Priced Neighborhoods**

ITEM	Neighborhood		Difference	%	Difference Per dB	% Differ. Per dB
	Noisy	Quiet				
DNL, dB	67	63	4	N.A.	N.A.	N.A.
Value (unadj.)	\$158,500	\$159,400	-\$900	-0.6%	-\$225	-0.14%
Value (adj.)	\$148,033	\$148,767	-\$734	-0.5%	-\$184	-0.12%

Paper: The Effect of Airport Noise on Housing Values: A Summary Report:

<https://apps.dtic.mil/dtic/tr/fulltext/u2/a300095.pdf>

- The following paper found out that houses located in an area in which noise disrupts normal activities (defined by a day-night sound level of 70-75 decibels) sell for 20.8 percent less than houses located where noise does not disrupt normal activities (defined by a day-night sound level below 65 decibels).

Paper: Spatial Hedonic Models of Airport Noise, Proximity, and Housing Prices:

<https://files.stlouisfed.org/files/htdocs/wp/2006/2006-026.pdf>

- This paper focuses on Minneapolis-St. Paul International Airport (MSP) and examines the airport noise impacts on housing prices by using two soundproofing initiatives for MSP as an identification strategy. They use information on properties that were eligible for soundproofing, after the soundproofing initiatives, to identify the causal impact of noise on house prices. They find that the magnitudes of the noise impacts on housing prices are approximately 2% per decibel, and are statistically significant. (See attached).
- Some additional things to note:
 - There are some cities, such as San Francisco, in the United States that have subsidized [sound insulation programs](#) for eligible homes within certain noise counters.
 - Another of these cities is the City of Chicago: see the program's fact sheet from the Chicago Department of Aviation [here](#) and from the O'Hare Noise Compatibility Commission [here](#).
 - The general conclusion from this study is that, to combat noise pollution, affected homes should be "soundproofed". This currently appears to be the most feasible/tangible solution, according to this study, to address the decreased values of homes.

- (See page 31 in the attached study): After several years of soundproof eligibility, the noise discounts of homes seem to diminish. **This suggests that sound-proofing homes may be the most effective and efficient way to combat the lowering of home values in high-noise areas.**
 - Find more information on sound insulation programs from the city of Chicago [here](#).
 - Find more information on the sound insulation program/initiative in San Francisco [here](#).
 - In Loudoun County, we could not find a similar program. See Dulles International Airport's statement on aircraft noise concerns [here](#).
- 4. This study provides estimates of the marginal implicit price of distance from large and small airports in Southern California. The results suggest that the distance at which home prices are not significantly different is around 4,500 meters. They also found out that homes located within 5,000 meters (3.10 miles) of a large airport have an average price that is estimated to be 4% to 10% lower than homes located greater than 5,000 meters from a large airport. Homes located within 5,000 meters of a small airport have a mean price that is 1.75% to 7.5% lower than homes outside the 5,000-meter perimeter.

Paper: Airport noise and residential housing valuation in southern California: A hedonic pricing approach:
<http://www.bioline.org.br/pdf?st04003>

- 5. Focusing on Hartsfield-Jackson Atlanta International Airport, this study found out that proximity to the airport is related positively to housing prices. However, airport noise has a negative impact on home prices. This study also found evidence indicating that the prices of houses near the Atlanta airport were affected positively by declining noise levels. The magnitude of the resulting impact on housing prices, roughly 20 percent, is substantial.

Paper: Changing Noise Levels and Housing Prices Near the Atlanta Airport:
<https://onlinelibrary.wiley.com/doi/full/10.1111/j.1468-2257.2009.00476.x>

- 6. A primary result from the analysis in this study is that the airport noise disclosure appears to have increased the price discount for homes near the airport by 37 percentage points.

Paper: "Buyer information and the hedonic: The impact of a seller disclosure on the implicit price for airport noise":
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.702.805&rep=rep1&type=pdf>

I hope these resources provide you with the information you're looking for. As always, please let me know if you have any questions or would like additional clarity.

Best regards,

Eric Fryer

Government Affairs Director

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