IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

WILLIAM HASSAY, JR.,	*	
Plaintiff,	*	
v.	*	Civil Action No.
MAYOR AND CITY COUNCIL OF OCEAN CITY, MARYLAND, *et al.*	*	
Defendants.	*	

* * * * * * * * * *

DECLARATION OF GARY EHRLICH

1. My name is Gary Ehrlich and I am the principal and sole member of Hush Acoustics LLC ("Hush Acoustics").

2. Hush Acoustics has been contracted by Orrick, Herrington & Sutcliffe LLP ("Orrick") on behalf of Mr. William Hassay, Jr., the plaintiff in this case.

3. Attached as Exhibit A, and incorporated herein by reference, is a true and correct copy of a report that Hush Acoustics LLC prepared at Orrick's request. A true and correct copy of my resume is attached as Exhibit 1 to that report.

I DECLARE UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT. EXECUTED ON APRIL 8, 2013.

Gary Ehrlich

EXHIBIT A

HUSH
ACOUSTICS LLC

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April 8, 2013

Orrick, Herrington & Sutcliffe LLP
Columbia Center
1152 15th Street, N.W.
Washington, DC 20005-1706

Re: Town of Ocean City Noise Ordinance
Acoustical Review

1. Background

Hush Acoustics LLC was founded in 2006 by Mr. Gary Ehrlich, and is presently a one-person company. Hush Acoustics LLC is a member of the National Council of Acoustical Consultants (NCAC). Mr. Ehrlich is licensed as a professional engineer in five states and the District of Columbia, holds a Bachelor of Architectural Engineering degree from the Pennsylvania State University, is a member of the Institute of Noise Control Engineering (INCE), has taught the Acoustics course in the Audio Technology program at American University in Washington, D.C., and has been working solely in the field of acoustical engineering continuously since 1991.

The attached resume (Exhibit 1) for Mr. Ehrlich itemizes his past experience as an expert witness. His project experience includes evaluating compliance with municipal noise ordinances in many jurisdictions including Albemarle County, VA, Alexandria, VA, Fairfax County, VA, Montgomery County, MD, Prince George's County, MD, Washington, DC, Philadelphia, PA, Montville, NJ, and many others.

His project experience also includes evaluating audibility of noise from musical events at a winery in Albemarle County, VA, as well as for a railroad crossing accident while working at a former employer.

Hush Acoustics LLC was retained on an hourly consulting basis at a labor rate of $100 per hour. Note that this rate is discounted 50% from our customary rate of $200 per hour.

2. Scope

Hush Acoustics LLC was contracted by Orrick, Herrington & Sutcliffe LLP on behalf of Mr. William Hassay, Jr., to conduct an acoustical analysis of ambient sound in Ocean City, MD, and evaluate audibility of Mr. Hassay performing on the boardwalk.

3. Analysis

3.1 Ambient Sound Tests

On Wednesday March 20, 2013, sound levels were measured on the Ocean City boardwalk in various locations.

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Sound levels were measured using a Norsonic Precision Sound Analyser Nor140 serial number 1402854 last calibrated on May 8, 2012, with a single Norsonic Type 1233 microphone serial number 08609. The meter was programmed to automatically store the sound level each second. The sound level meter was calibrated using a Quest Technologies QC-20 Calibrator serial number QOF07008 and last complete laboratory calibrated on May 8, 2012, calibrated traceable to the National Institute of Standards and Technology (NIST). Calibration of the meter was also verified after completion of the measurements to be within 0.2 dB of the initial calibration level.

The purposes of these tests were: (1) to collect a sampling of ambient sound level data, and (2) to determine at what distance various sound sources were audible. A laser range finder was used to determine approximate distances to sound sources, most of which were moving.

Sound levels were measured in the following locations:

- Location 1. On the boardwalk along the extension of Dorchester Street. This area is quieter than the subsequent three locations.
- Location 2. On the boardwalk along the extension of Talbot Street at Fisher's Popcorn. There was somewhat more activity at this location, although it was still quieter than locations 3 and 4.
- Location 3. On the boardwalk north of Talbot Street and south of Caroline Street at Verizon Wireless. This location is approximately 50 feet from the entrance to Shore Side Shop which had amplified music playing most of the time sound levels were measured.
- Location 4. On the boardwalk north of South Division Street at Playland. This location is approximately 37 feet from the door to Playland; the door remained open during the entire test.

The A-weighted sound level is an overall sound level metric which has sound levels in certain frequency ranges altered to make the overall sound level correlate with peoples' judgment of loudness for many types of sounds. This is the most commonly used sound level metric. Measured A-weighted ambient sound levels were as follows:

	Average	Maximum	Minimum	Duration of Sample
Location 1:	51.7 dB	65.1 dB	43.4 dB	16.1 minutes
Location 2:	54.3 dB	66.3 dB	46.1 dB	5.1 minutes
Location 3:	59.1 dB	77.2 dB	43.0 dB	30.0 minutes
Location 4:	61.3 dB	65.6 dB	57.6 dB	5.0 minutes

Typical sound sources included the following:

- A plow driving along the beach
- Pickup trucks starting, closing doors, and driving on the boardwalk
- A distant backup beeper
- Distant cars or motorcycles
- Seagulls
- Heels of people walking by
- People talking to each other, talking on a telephone, yelling, sneezing, blowing their nose, or crinkling a plastic bag
- Moving bicycles, skateboards, and strollers
- Hand tools and a saw from construction activity at two closed shops

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- Dogs barking and walking by with jingling collars
- Amplified music from stores
- Rolling out a rack of shirts for sale
- A delivery hand truck rolling
- A portable music player

Following is a summary of the approximate distances at which sound sources were audible and the location in which they were heard. Distances were not estimated until measurements at location 2 began. Typically, no attempt was made to determine the maximum distance at which sound sources were audible. When multiple distances are listed below, there were occurrences on multiple occasions.

Location 2 (at Fisher's Popcorn):

- Talking at 30', 30', 51', 54', 71', and 180'

Location 3 (at Verizon Wireless near Shore Side Shop while music was playing but not between songs):

- Stroller wheels at 64'
- Talking at 53' and 75'
- Skateboard rolling at 200' and 300'
- Saw at 215'
- Dog collar jingling at 60'
- Sneeze at 72'
- Car starting at 230'
- Car door closing at 109'
- Yelling at 460'
- Crinkling a plastic bag at 60'
- Click of a woman's heels as she walked at 69'
- Bike coasting at 57'

After testing at location 3 it was determined that music from the Shore Side Shop was audible at 230'.

Location 4 (at Playland):

- Skateboard rolling at 60'

After testing at location 4 it was determined that music from a portable music player (e.g., an iPod) with an amplified speaker on a bench was audible at 185'

3.2 Sound Source Tests

On Friday March 15, 2013, sound levels were measured on the street outside our office at 9109 Coronado Terrace, Fairfax, VA 22031. Mr. William Hassay, Jr. brought his violin and amplified speaker, and performed while sound levels were measured. Mr. Hassay's amplified speaker was a Roland Cube Street Battery Powered Stereo Amplifier with the musical signal being generated by an iPod. Mr. Hassay

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was instructed to set the volume on his amplified speaker to an average setting which he would use while performing on the boardwalk in Ocean City.

The average person can hear frequencies of sound from approximately 20 Hz to approximately 20,000 Hz. This wide frequency range is typically divided into bands one octave wide, or one-third of an octave wide. Sound levels were measured in each one-third octave band using the Norsonic sound level meter (described above) placed on a tripod along a line on axis with Mr. Hassay's speaker. The meter was programmed to automatically store the sound level each second. The meter was calibrated prior to beginning the tests and the calibration was verified after completing the tests to be within 0.1 dB of the initial calibration level.

These tests were performed at the end of a cul-de-sac in a quiet residential neighborhood. The ambient A-weighted sound level prior to beginning the tests was typically approximately 43 to 46 dB. This low sound level was not significant relative to sound levels produced by Mr. Hassay.

A Hush Acoustics LLC loudspeaker was set up on a tripod and broadband (i.e., pink) noise was fed into the speaker at a steady level. The volume of the speaker was turned up in approximately 5-dB steps (using an indexed knob on the amplifier such that the settings are repeatable) and a log of audible sounds was maintained. After this series of tests, sound levels were measured due to the Hush Acoustics LLC speaker alone using the same 5-dB steps. After completing the tests it was determined that when the sound level due to the Hush Acoustics LLC speaker alone was 84.9 dBA, Mr. Hassay's music was clearly audible and the song was recognizable. When the sound level due to the speaker alone was increased one and two steps to 89.6 dBA and 94.0 dBA, respectively, the song was not recognizable but the symbol crashes of the recorded music were just audible. When the sound level due to the speaker alone was increased one more step to 97.7 dBA the music was completely inaudible.

Since it is spring, it was not possible to measure the highest ambient sound levels which presumably occur during summer in Ocean City on the boardwalk. Clearly, broadband noise from a speaker is not a natural sound that one would encounter on the boardwalk. Nevertheless, speaker noise is a useful way to determine audibility in the presence of general ambient sound.

It is a simple matter for an individual to listen to a sound and determine if it is audible. It is much more complex to predict in advance whether the average person would state that a given sound is audible in a certain ambient sound environment. Audibility is affected by the level, frequency, and time variation of the sound being listened for (i.e., a "signal"), and the level, frequency, and time variation of the ambient sound (i.e., "noise"). As a general rule, if the sound level of the signal is equal to or greater than the sound level of the noise in any one-third octave band, an average person who is not attentively listening for the sound (i.e., an "inattentive listener") would likely judge the sound to be audible. If the sound level of the signal is within 10 dB of the sound level of the noise in any one-third octave band, an average person who is attentively listening for the sound (i.e., an "attentive listener") would also likely judge the sound to be audible. In the context of enforcement of the noise ordinance, a police officer determining if a performer is audible would clearly be considered an attentive listener, as would the audience, while people walking by not aware of the performance would be considered inattentive listeners.

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Figure 1 presents a graph of six data series for one-third octave bands of 50 to 10,000 Hz (this is approximately the range of sound levels output by the Hush Acoustics LLC speaker and by Mr. Hassay's speaker). Four of the series represented by black dashed lines are for broadband noise generated by the Hush Acoustics LLC speaker without Mr. Hassay playing. The remaining two series are for Mr. Hassay playing without the Hush Acoustics LLC speaker operating; the orange line is the maximum sound level with the sound level meter set on "slow" response, and the blue line is the average sound level, each calculated for the duration of one song (i.e., Jimmy Buffet's "Margaritaville").

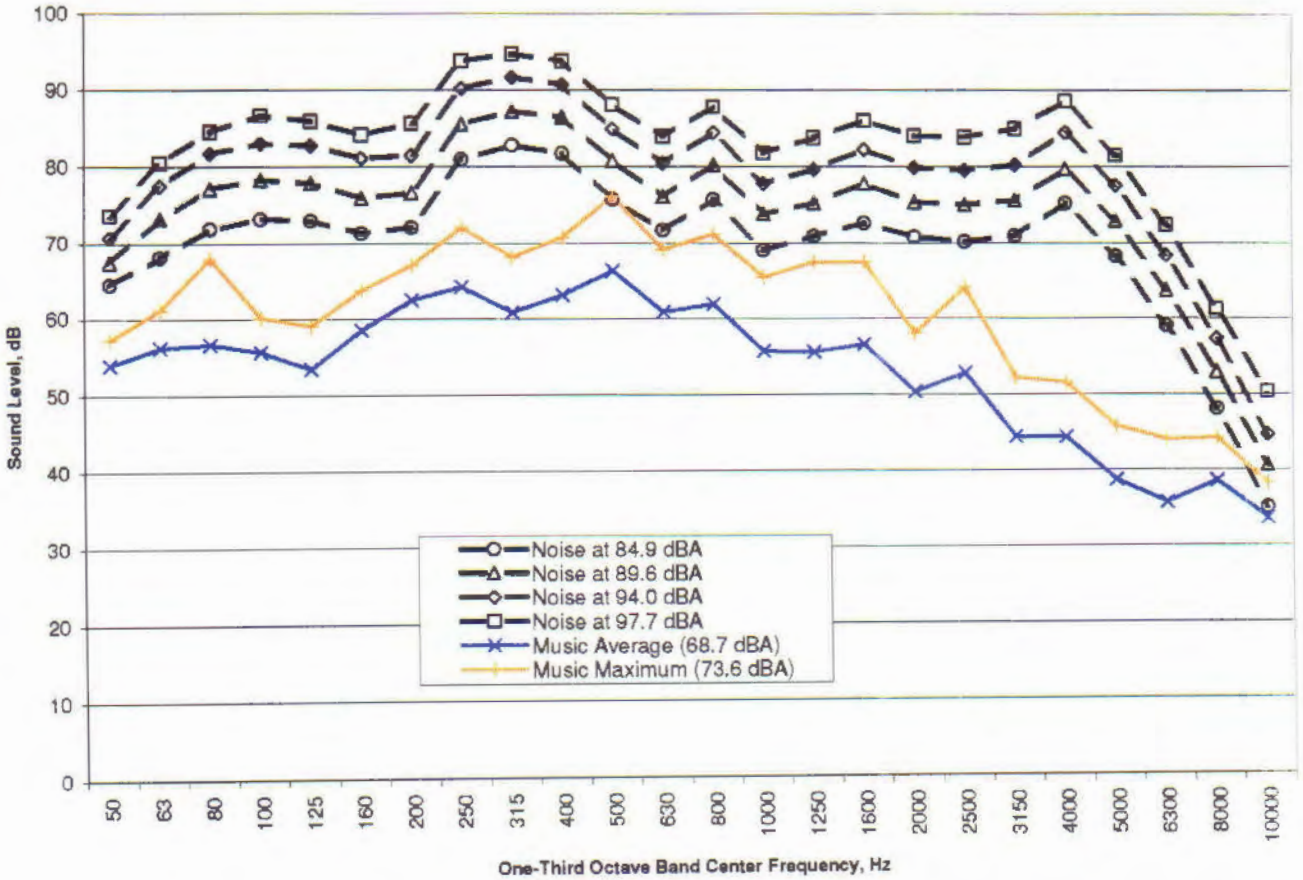

Figure 1. Speaker Test Results

As noted above, the music was clearly audible and the song was recognizable when the A-weighted sound level of the noise was 84.9 dBA. Consider the quietest speaker data series in Figure 1 (i.e., "Noise at 84.9 dBA"). For this speaker setting, the maximum sound level due to music is approximately equal to the average sound level of the speaker noise in at least one frequency band (i.e., 500 Hz), and is within 10 dB of the speaker noise in most other frequency bands. The observation that this music was audible is consistent with the general rule discussed above that a signal is audible when it produces a sound level within 10 dB of the ambient sound level in any one-third octave band.

As noted above, the music was completely inaudible when the A-weighted sound level of the noise was 97.7 dBA. Now consider the loudest speaker data series in Figure 1 (i.e., "Noise at 97.7 dBA"). For this

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speaker setting, the maximum sound level due to music is approximately 12 dB or more below the sound level of the noise in all one-third octave frequency bands. Again, this observation that the music is inaudible is consistent with the general rule regarding audibility discussed above.

This test shows that in terms of average A-weighted sound levels, the music was:

- clearly audible and recognizable when the ambient sound level was 16.2 dB greater than that of the music
- partially audible but not recognizable when the ambient sound level was 20.9 to 25.3 dB greater than that of the music
- completely inaudible when the ambient sound level was 29.0 dB greater than that of the music

3.3 Conclusions

3.3.1 Sound Source

The Town of Ocean City noise ordinance applies to "Any person playing a musical instrument or operating a sound amplification device that can be heard at a distance of 30 feet..." as well as "Any person who can be heard singing, yelling, hooting, hollering or whistling at a distance of 50 feet..."

Typically, noise ordinances are intended to limit adverse affects of noise such as sleep disturbance, speech interference, and annoyance. Given the commercial use of the boardwalk, sleep disturbance should not be a major concern there. The amount of speech interference is a function of the level of the noise in each one-third octave band. Whether that noise is from a musical instrument or sound amplification device, or a person singing, yelling, etc., is irrelevant in determining whether speech interference results. The amount of annoyance varies from one person to the next. We are unaware of any reason why noise from musical instruments or sound amplification devices would be considered more annoying to the average person than would noise from singing, yelling, etc.

3.3.2 Sound Level

The following conclusions can be reached based on the acoustical tests performed by Hush Acoustics LLC:

1. 30-foot distance in ordinance. Virtually all ambient sounds are audible at distances far greater than the noise ordinance limit of 30 feet. Even the jingling of a dog collar and normal conversational speech are audible at this distance. Therefore, the sound of all musical instruments and sound amplification devices would be audible at 30 feet. Put another way, in order to comply with the noise ordinance requirement, a musical performer would have to be quieter than a dog collar jingling which is infeasible.
2. Distances greater than 30 feet. Typical ambient sounds were audible at far greater distances including a yell audible at 460' and a skateboard rolling audible at 300'. Therefore, even if the distance of the noise ordinance provision were doubled or tripled, typical ambient sounds would still be audible at those distances. This occurs with almost any audibility-based (as opposed to a sound level-based) noise ordinance.
3. Appropriate listening conditions for music. A sound source (e.g., music in this case, or a classroom teacher in another setting) is audible when the sound level of the source is somewhat

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lower than the ambient sound level in at least one one-third octave band. However, this does not allow for much speech intelligibility, and by extension would not allow for a good music listening condition. To provide high speech intelligibility, and by extension to have good listening conditions for music, it is necessary for the sound level of the speech/music to be 15 dB greater than the ambient sound level. The average A-weighted sound level of Mr. Hassay's music at 30 feet away during a single song was 68.7 dBA. It was assumed that audience members would be up to approximately 15 feet away from Mr. Hassay. Sound levels tend to increase approximately 6 dB when going from 30 to 15 feet from a sound source. Therefore, the average A-weighted sound level of Mr. Hassay's music at 15 feet away would be approximately 74.7 dB. The average A-weighted ambient sound level during our springtime tests was 59.1 to 61.3 dB at locations 3 and 4 (i.e., the noisier two locations). Therefore, at a distance of 15 feet in these locations the average A-weighted sound level due to Mr. Hassay's music would be approximately 13.4 to 15.6 dB greater than that of the ambient sound. This shows that the volume at which Mr. Hassay plays is appropriate but is not greater than is necessary to provide good listening conditions at 15 feet away for springtime conditions. In summer, it is possible that higher ambient sound levels would mean that Mr. Hassay's music does not meet this 15-dB goal and would be noticeably quieter than is necessary to provide good listening conditions.

4. Reference sound levels. For reference, following are how high A-weighted sound levels are for some familiar sounds (taken from U.S. Environmental Protection Agency documents):

Noises:

Waste food disposer	67-93 dBA
Automobile at 50 feet	64-88 dBA
Vacuum cleaner	60-85 dBA
Washing machine	47-73 dBA
Refrigerator	45-68 dBA

Average conversational speech at 1 meter:

Inside suburban house	55 dBA
Outdoors in suburban area	55 dBA
Inside urban house	57 dBA
Outdoors in urban area	65 dBA
On a train	66 dBA
On an aircraft	68 dBA

5. Audibility of Mr. Hassay's music. It would take an ambient A-weighted sound level of approximately 90 dBA to make Mr. Hassay's music inaudible. This sound level is quite high. In fact, this is the limit of noise exposure for an 8-hour workday under the Occupational Safety and Health Administration (OSHA) regulations. It is quite unlikely that the typical ambient sound level in summer is this high.
6. Compliant music. As noted above in section 3.2, Mr. Hassay's music was partially audible but not recognizable when the average A-weighted ambient sound level was 20.9 dB greater than that of the music. As noted above in section 3.1, the average A-weighted ambient sound level in Ocean City was between 51.7 and 61.3 dB in four locations. In order to comply with the noise ordinance requirement that music be inaudible at 30 feet, given the ambient conditions observed in Ocean City, the music would have to produce a sound level of approximately 30.8 to 40.4 dB at 30 feet. As noted above, sound levels tend to increase approximately 6 dB when going from

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30 to 15 feet from a sound source. Therefore, at a distance of 15 feet (where audience members might be located) the average A-weighted sound level would be approximately 36.8 to 46.4 dB. Based on the reference sound levels noted above, this is noticeably quieter than conversational speech inside a suburban house and is quieter than most refrigerators. Clearly, this would not provide good music listening conditions.

Sincerely,

Gary Ehrlich, P.E.
Principal

EXHIBIT 1

HUSH
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Resume for Gary Ehrlich, P.E.

Experience

Hush Acoustics LLC, Fairfax, Virginia – Member of NCAC **2006-Present**
Principal. Provide acoustical consulting services for architects, designers, engineers, builders, developers, lawyers, contractors, hotels, restaurants, and industrial plants in the areas of architectural acoustics and environmental noise

Wyle Laboratories, Inc., Arlington, Virginia **1995-2005**
Senior Staff Engineer (2004-2005), Senior Acoustical Engineer (1998-2003), Acoustical Engineer (1995-1997).
Responsibilities:

- For airport school and residential sound insulation programs manage on-site staff, half-million-dollar annual fees, and all technical areas such as sound insulation designs, construction specifications, noise level predictions, noise test procedures, grant applications, and FAA reports
- Manage hundreds of highway noise consulting projects for builders, developers, and architects including noise measurements, computerized highway noise modeling, designing noise mitigation measures, drawing noise contours, predicting noise levels indoors, writing reports, and testifying at zoning and planning commission hearings
- Manage architectural acoustics projects relating to mechanical system noise and vibration control, plumbing noise, acoustical privacy, building code requirements, and reverberation time

American University, Washington, D.C. **2002-2004**
Instructor. Acoustics course, Audio Technology program of American University in Washington, D.C.

Polysonics Inc. (now Polysonics Corp.), Washington, D.C. **1991-1994**
Acoustical Engineer. Manage projects relating to architectural acoustics, mechanical system noise and vibration control, highway noise, and audio-visual system design

Leo A Daly Company, Washington, D.C. **1990-1991**
Junior Engineer. Design structural systems for steel and concrete structures, perform existing conditions measurements, and prepare prospectus development studies

Education

Awarded Bachelor of Architectural Engineering (Structural Systems Option) in 1990 from the Pennsylvania State University, University Park, Pennsylvania

Affiliations

Professional engineer in the states of Virginia (license number 0402 026179), Maryland (license number 32406), the District of Columbia (PE 906230), New York (license number 086840-1), New Jersey (license number GE048536), and Florida (inactive license number 59582)
Member of American Society for Testing and Materials (ASTM)
Member of Institute of Noise Control Engineers (INCE)

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Expert Witness and Court-related Experience

Qualified as an expert in acoustical engineering before the following agencies:
Maryland:

- Montgomery County, MD Hearing Examiner (Mr. Martin L. Grossman) on October 25, 2004, for Miller and Smith regarding bus depot noise at a proposed residential development called Eastside, and on December 22, 2008, for Fifty LLC regarding traffic noise as well as noise from the Public Safety Training Academy for a proposed residential development called Darnestown at Travilah
- Montgomery County Hearing Examiner (Mr. Philip J. Tierney) on May 2, 2006, for Winchester Homes regarding highway noise at Christian Life Center townhouse development (zoning application G-839)
- Montgomery County Hearing Examiner (Ms. Francoise M. Carrier) on June 26, 2006, for Winchester Homes regarding highway noise at the Darnestown Road townhouse development (zoning application G-849)
- Montgomery County, MD Hearing Examiner (Mr. Martin L. Grossman) on December 22, 2008, for Tenacity regarding highway noise and noise from a public safety training academy at the Darnestown at Travilah townhouse development (zoning application G-849)
- Prince George's County Zoning Hearing Examiner (Ms. Joyce B. Nichols) on July 29 and August 19, 2009, and Prince George's County District Council on January 25, 2010, for Try It Again, Inc. T/A Kenilworth Foreign Car Parts regarding noise emissions a car crushing operation (SE-4618)
- Prince George's County Zoning Hearing Examiner (Ms. Joyce B. Nichols) on November 8, 2006, for Florida Rock Industries regarding noise emissions from the Marvaco Concrete Batching Plant (SE-4502)
- Prince George's County Zoning Hearing Examiner (Ms. Maurene Epps Webb) on October 14, 2005, for SCAD LLC regarding noise from highways and a police firing range at a proposed residential development called Renard Lakes
- Prince George's County Zoning Hearing Examiner on March 5, 1994, and April 6, 1994, for a proposed attraction at Wild World Amusement Park
- Prince George's County Planning Commission on October 20, 1994, , for Samson's Gym, Inc. for a project in Laurel, Maryland

Virginia:

- City of Falls Church Board of Zoning Appeals hearing on April 14, 1994, for Jennings Properties on the Falls Church Auto Body Ltd project
- City of Falls Church Board of Zoning Appeals hearing on June 14, 1993, for R and B Professional Consultants, Inc. on the Koons Body Shop project
- County of Fairfax Planning Commission on September 14, 2000, for Winchester Homes on the Cyrandall Valley housing project located along I-66
- Town of Vienna Board of Zoning Appeals on September 1, 2004, regarding noise from an industrial grinder in Beulah Road Park
- Town of Vienna Planning Commission on July 28, 2004, regarding noise from an industrial grinder in Beulah Road Park

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- Chesterfield County Planning Commission on April 18, 2006, regarding noise from events at a bed and breakfast called Celebrations at the Reservoir
- Arlington County Board Meeting on February 11, 2012, regarding noise from the Westover Market outdoor patio music impacting nearby residences.

Washington, D.C.

- Superior Court of the District of Columbia – Testified as an expert witness on April 20, 2011 before Judge Henry Greene in a case relating to noise emissions from Eden Lounge impacting the Club Quarters hotel

New Jersey

- Montville Township Zoning Board of Adjustment on October 5, 2011, December 7, 2011, and January 4, 2012, regarding noise from a Jersey Central Power & Light Company transformer impacting residences.
- Deposed on August 18, 2011 for case of Garwood-North, LLC vs. Chester, Ploussas, Lisowsky Partnership, LLP being heard in the Superior Court of New Jersey Law Division: Union County.

New York

- Village of Westbury Planning Board on August 21, 2007, regarding noise from a proposed expansion of Hicks Nurseries

Depositions:

- Circuit Court for Baltimore County – Deposed in a case (Aaron Freedman, et. al. v. The Council of Unit Owners of the Risteau at Rockland, Inc.) on December 22, 1994, that was settled before trial regarding noise from a garage door opener.
- County of Fairfax – Deposed in a case (Richard M. Robertson v. Board of Supervisors of Fairfax County, Virginia, et al.) on April 11, 2002 relating to highway noise.

Publications and Presentations

Published Reports and Articles

Theory and Design Tools for Studies of Reactions to Abrupt Changes in Noise Exposure, James M. Fields, Gary E. Ehrlich and Paul Zador, NASA/CR-2000-210280, October 2000

Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations, prepared for Department of the Navy, Naval Facilities Engineering Command, Gary Ehrlich, Melissa Burn, Clint Morrow, Abigail Stefaniw, April 2005

A Typical Case Study of School Sound Insulation, Gary E. Ehrlich, P.E., and Yuri Gurovich, Sound and Vibration, pp. 16-19, June 2004; also presented at Noise-Con 2003, Cleveland, OH, June 23-25, 2003

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A Comparison of Different Aircraft Noise Metrics for Large, Medium, and Small Airports, The Journal of the Acoustical Society of America, May 1995, Volume 97, Issue 5, p. 3304, Melissa Burn, Eric Stusnick, Gary Ehrlich; also presented at ASA 129th Meeting in Washington, DC, May 30, 1995

Standards Development

Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, American National Standards Institute, Inc. (ANSI) S12.60-2002 and 2010

Significant Wyle Reports

Wyle Research Report WR 98-29, *Acoustical Design Guide for the Sarasota Bradenton International Airport Residential Sound Insulation Program*, prepared for W.D. Schock Company, Inc., Belleair, Florida, Gary E. Ehrlich, December 1998

Wyle Research Report WR 97-2, *Design Guide for the Detroit Metropolitan Wayne County Airport Sound Insulation Project*, prepared for Sverdrup Facilities, Inc., Detroit, MI, Gary E. Ehrlich, March 1997

Wyle Report WR 04-10, *Vibration Analysis for Navy Use of Explosives at Avon Park*, prepared for Ecology and Environment, Inc., Tallahassee, FL, Contract No. SD-4000-A; Task 1383.SW06 (Prime: N68711-01-D-6205), Gary Ehrlich, April 2005

Wyle Report WR 03-10, *New Construction Acoustical Design Guide, prepared for City of High Point*, High Point, NC, Clint Morrow, Gary Ehrlich, William Albee, March 2003

Wyle Report WR 04-28, *New Construction Acoustical Design Guide, prepared for MCAS Cherry Point*, Gary Ehrlich, December 2004

Wyle Report WR 04-09, *Acoustical Design Guide for Residences, prepared for City of Boise Part 150 Study Update*, Clint Morrow, Gary Ehrlich, April 2004

Wyle Report WR 03-03, *Noise Mitigation Measures at the Martin Marietta Aggregates Orangeburg Quarry*, prepared for Nexsen, Pruet, Jacobs, Pollard, and Robinson, Charleston, SC, Gary Ehrlich and Yuri Gurovich, February 2003

Wyle Report WR 03-17, *Buffalo Niagara International Airport Part 150 Study – Noise Measurement and INM Validation*, prepared for PB Aviation, Inc., Cincinnati, OH, Gary Ehrlich, Michael James, Xaviera Jessurun, August 2003

Wyle Research Report WR 00-17, *Community Noise Assessment for CMS Defense Systems Artillery Range*, prepared for Stone County School District, Wiggins, MS, Gary Ehrlich, Roger Odegard, July 2000

Wyle Research Technical Note, TN 95-3, *Acoustical Study for the Town of Harrison, NY*, prepared for Town of Harrison, Gary E. Ehrlich, Marcio Avillez, March 1995

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Wyle Research Report WR 99-27, *Charlotte Trolley Noise and Vibration Study*, prepared for Boner Associates, Inc., Austin, TX, Gary E. Ehrlich, Yuriy Gurovich, October 1999

Wyle Research Report WR 98-22, *A Survey of Potential Norfolk Southern Noise Mitigation Sites Identified in the Surface Transportation Board's Final Environmental Impact Statement on the Proposed Conrail Acquisition*, prepared for Versar, Inc., Springfield, VA, Gary Ehrlich, Roger Odegard, Eric Stusnick, October 1998

Wyle Research Report WR 95-34, *Noise Study for Marine Corps Base Quantico, Virginia*, prepared for Navy Facilities Engineering Command, Alexandria, VA, Gary M. Sypek, Gary E. Ehrlich, Michael J. Lucas, October 1995

Classroom Acoustics Standard, Wyle White Paper, Gary Ehrlich, www.WyleAcoustics.com, 2002

Presentations

Measurement Procedures for Determining the Noise Level Reduction of Dwellings Exposed to Aircraft Noise, Gary Ehrlich, presentation at American Association of Airport Executives (AAAE) Sound Insulation Symposium, October 22, 2001, Palm Springs, CA

Classroom Acoustics, Gary Ehrlich, presentation at American Association of Airport Executives (AAAE) Sound Insulation Symposium, October 18, 2004, Palm Springs, CA

Modeling Aircraft Noise: A Concept Analysis, J.M. Downing, B.J. Ikelheimer, G. Ehrlich, presented at the 2005 Congress and Exposition on Noise Control Engineering, Internoise, Rio de Janero, August 7-10, 2005

Acoustical Tests of Noise Barriers at Sarasota Bradenton International Airport, Gary Ehrlich, Yuriy Gurovich, presented at Transportation Research Board (TRB) Committee A1F04 meeting in Austin Texas, July 8, 2002

Noise Concerns for Animal Shelters, Gary Ehrlich, presented at: "From Ground Zero to Ground Breaking: Building an Animal Shelter, A Day-Long Course Presented by The Humane Society of the United States," February 24, 1999

Architectural Acoustics, Gary Ehrlich, guest lecture presented to George Washington University interior design students in 2004, 2005, 2006, 2007, 2008, and 2009

Architectural Acoustics, Gary Ehrlich, continuing education course approved by the Interior Design Continuing Education Council presented to interior designers, presented at:

- Mancini Duffy in Washington, D.C. on April 29, 2006
- Teknion Showroom (for Washington Metro City Center of International Interior Design Association) in Washington, D.C. on December 7, 2006
- Anne Arundel Community College (for Mid-Atlantic Chapter International Interior Design Association) in Arnold, MD on January 23, 2007
- Envision Desigu PLLC in Washington, D.C. on January 24, 2007

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- U.S. Department of State in Arlington, VA on May 9, 2007
- OPX in Washington D.C. on November 29, 2007
- U.S. Army Corps of Engineers, Honolulu District, Regulatory Branch on December 21, 2007
- NeoCon East in Baltimore, MD on October 30, 2008