

## Douglas Hammon

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**From:** Wes Butch [wbutch@dlz.com]  
**Sent:** Wednesday, September 22, 2004 8:20 AM  
**To:** Burn, Melissa; Douglas Hammon; Jason Whitten  
**Subject:** Re: OSU SHPO letter/ EA Review

Thanks Melissa. This will certainly cover us from a structural soundness perspective. I am more concerned with a different argument that SHPO often makes in such situations. They often contend that one of the elements which contributes to the historic nature of a site is its overall atmosphere/setting. In other words, they claim that a property is eligible for the National Register because of its unique architecture and/or important role in local/regional history and that an overall quiet atmosphere contributes to its eligibility. Of course, this interpretation is vague, subjective, and often ignores factual information. We may need to demonstrate that below 65 DNL, there is no basis for concluding the overall atmosphere has been compromised. It will also help our cause to show how low these sites actually are right now and in the future and that noise levels will actually decrease in the future.

Will let you know what we hear from Ernie.

----- Original Message -----

From: "Burn, Melissa" <mburn@wylelabs.com>  
To: "Douglas Hammon" <dhammon@osuaiport.org>; "Wes Butch" <wbutch@dlz.com>; "Jason Whitten" <jwhitten@dlzcorp.com>  
Sent: Tuesday, September 21, 2004 5:20 PM  
Subject: RE: OSU SHPO letter/ EA Review

Hi,

If SHPO wants to consider impacts outside the DNL 65 dB area, the following text on scientific research about structural vibrations and damage may be helpful. It comes from Appendix A of the noise report we just sent out, pages A-43 & -44. As you read the text below, keep in mind that the loudest single event level we measured off airport (Lear25) had a maximum sound level less than 110 dB - and this level was only reached on one occasion.

The vast majority of aircraft events are considerably quieter than that.

### A.3.10 Noise Effects on Structures

Normally, the most sensitive components of a structure to airborne noise are the windows and, infrequently, the plastered walls and ceilings. An evaluation of the peak sound pressures impinging on the structure is normally sufficient to determine the possibility of damage. In general, at sound levels above 130 dB, there is the possibility of the excitation of structural component resonances. While certain frequencies (such as 30 hertz for window breakage) may be of more concern than other frequencies, conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components (CHABA 1977).

Noise-induced structural vibration may also cause annoyance to dwelling occupants because of induced secondary vibrations, or rattling of objects within the dwelling such as hanging pictures, dishes, plaques, and bric-a-brac. Window panes may also vibrate noticeably when exposed to high levels of airborne noise. In general, such noise-induced vibrations occur at sound levels of 110 dB or greater. Thus, assessments of noise exposure levels for compatible land use should also be protective of noise-induced secondary vibrations.

### A.3.12 Noise Effects on Historical and Archaeological Sites

Because of the potential for increased fragility of structural components of historical buildings and other historical sites, aircraft noise may affect such sites more severely than newer, modern structures. Particularly in older structures, seemingly insignificant surface cracks initiated by vibrations from aircraft noise may lead to greater damage from natural forces (Hanson, et al., 1991). There are few scientific studies of such effects to provide guidance for their assessment.

One study involved the measurements of sound levels and structural vibration levels in a superbly restored plantation house, originally built in 1795, and now situated approximately 1,500 feet from the centerline at the departure end of Runway 19L at Washington Dulles International Airport (IAD). These measurements were made in connection with the proposed scheduled operation of the supersonic Concorde airplane at Dulles (Wesler 1977). There was special concern for the building's windows, since roughly half of the 324 panes were original. No instances of structural damage were found. Interestingly, despite the high levels of noise during Concorde takeoffs, the induced structural vibration levels were actually less than those induced by touring groups and vacuum cleaning.

As noted above for the noise effects of noise-induced vibrations of conventional structures, assessments of noise exposure levels for normally compatible land uses should also be protective of historic and archaeological sites.

-----Original Message-----

From: Douglas Hammon [mailto:dhammon@osuaiport.org]  
Sent: Tuesday, September 21, 2004 4:54 PM  
To: Wes Butch; Jason Whitten; Burn, Melissa  
Cc: ernest.gubry@faa.gov  
Subject: RE: OSU SHPO letter/ EA Review

I bet you can guess my response. . .

If SHPO is concerned about the APE for OSU with respect to the historic district of Worthington, I am certain that the proof is out there that the northern track in/out of CMH has the same impact. Due to the 050 turn, many of our aircraft do/will avoid the historic district, but the aircraft to/from CMH will continue to travers that area at a relatively low altitude.

Let's push to keep a consistant standard for both facilities.

Doug

-----Original Message-----

From: Wes Butch [mailto:wbutch@dlz.com]  
Sent: Tuesday, September 21, 2004 4:38 PM  
To: Douglas Hammon; Jason Whitten; Burn, Melissa  
Subject: Fw: OSU SHPO letter/ EA Review

All -

Below is an email exchange between Ernie and I. I will let you know after he calls me back. Don't want to jump the gun, but based on what he says in his email, we may have some convincing to do with SHPO that the APE (Area of Potential Effect) which we need to survey for historic buildings is the 65 DNL contour, and not something larger. Not sure where this is going to go, but may need some assistance from Melissa to persuade them.

Wes

----- Original Message -----

From: "Wes Butch" <wbutch@dlz.com>  
To: <Ernest.Gubry@faa.gov>  
Sent: Tuesday, September 21, 2004 4:32 PM  
Subject: Re: OSU SHPO letter/ EA Review

> Thanks for the information Ernie. I left you a phone message, but  
> wanted  
to  
> also follow up with this email. You note that SHPO has "strong  
feelings"  
> about the OSU Airport APE. Please elaborate about what they think  
> should  
be  
> the APE. I'm concerned that their position may be influenced by the  
> huge amount of misinformation that is out there (being put out by  
> WOOSE, Zoll, Graham, and others). The factual results of the noise  
> study are in direct opposition to these misperceptions and wild  
claims.  
>  
> Wes  
>  
> ----- Original Message -----  
> From: <Ernest.Gubry@faa.gov>  
> To: "Wes Butch" <wbutch@dlz.com>  
> Sent: Tuesday, September 21, 2004 4:08 PM  
> Subject: Re: OSU SHPO letter/ EA Review  
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> > Sorry I did not get back to you sooner I have been in training all  
> > day today  
> >  
> > I have finished the "Zoll" letter and will start on the Paul Graham  
letter  
> > shortly.  
> > SHPO has contacted me concerning the APE and has strong feeling on  
> > it  
> >  
> > We have undergone a change in staff, so I am not able to make  
> > future commitments on review dates I will be requesting that I  
> > attend the meeting in Oct, not sure if I  
will  
> > be able to attend the evening meeting or stay overnight  
> >  
> > I have several projects that I need to work on prior to working on  
OSU.  
> > At best I am hoping to look at the EA later this week.  
> > I did cancel a planned trip on Friday, so I would have more review  
> > time  
in  
> > the office.  
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> > Ernest  
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