Flightseeing Noise Study

Q & A

July 27, 2000

Centennial Hall

Baker Project Team Manager: McKie Campbell, Michael Baker Jr., Inc.

Acoustic Consultant: Paul Dunholter, BridgeNet International

Meeting Facilitator: Cathryn Collis, SWCA Inc. (Envrionmental Consultants)

Acronyms

CBJ: City and Borough of Juneau

DNL: Day Night Level

EPA: Environmental Protection Agency

FAA: Federal Aviation Administration

USFS: U.S. Forest Service

Citizen Questions at the Public Meeting

Unless otherwise noted, Paul Dunholter provided the response to the questions.

Q1 ***Would you characterize your methodology as a Dose-Response methodology?*** *(The question refers to a methodology used by the National Park Service that statistically relates a visitor's response or judgment of aircraft overflights to the quantitative measure of the dose or the sound the visitor may have heard.)*

A No. What we are doing is documenting what the noise levels are and quantifying those levels with different metrics. You could compare those results with different Dose-Response curves such as the National Park Service curve or the FAA curve. Our purpose is not to say what is too much or what is fine relative to those criteria but rather to say this is what the noise levels are. Then, when you look at different scenarios of how to improve the situation, you would be able to see how the current noise levels would changes.

Q2 ***Do you intend to create an annoyance curve or will you use one of the national average curves?***

A No. Will will not use those curves to say people are not annoyed. You are here at this meeting because you are annoyed. We will not be making a judgment as to whether at these noise levels 20 percent or 30 percent, etc., of the people will be bothered. We could say at this level the FAA criteria would say X number of people would be annoyed or the Parks Service criteria would say X number of people would be annoyed. But we will not make any sort of judgment or say Juneau is like the rest of the nation. We are just documenting what the noise levels are.

Q3 ***Is there a plan in your proposal to gather survey responses?***

A. My recommendation is not to survey responses to specific events at this time and I will tell you why. First, the Park Service has spent $10 million creating those curves and there are still problems with the methodology. Even with the substantial amount of money that has been spent on those studies, they have a very difficult time defending them. It is a huge research problem and very difficult to defend. If we were to try and do a survey here, the charged environment with the initiative and the relatively small population that we are dealing with would make it especially difficult. Even if we did an unbiased survey (and it is possible to do a an unbiased survey), I don't care how good it is, no one is going to believe the results. Each side will be to be able to say, "How can you expect to get an unbiased survey in this type of situation?" I don't think that it is appropriate at this point in time and I don't think it would be defensible. It is more valuable to be able to identify what the levels are and what it means with different criteria beyond what the FAA might say to use. Helicopter noise has not been properly researched. Research of this type should be done on the federal level because a small study out of one

Q4 ***What steps are you taking to ensure that the location of the listening devices doesn't affect flight paths?***

A I think what you are asking me is how do we know the aircraft operators won't fly somewhere other than where we are measuring. That is always an issue and a concern whenever we do a noise study. I have several responses to that question.

1. We will have more than one monitor out there, a network of monitors, positioned pretty much everywhere along the different flying patterns. There are not that many places the aircraft can fly here and there is a relatively narrow corridor of paths that the aircraft can use. It varies depending upon the weather, but there are not a lot of options, so if they do avoid a monitor, we are going to pick up the sound on another one.

2. We will watch what is going on during the monitoring, see what is happening, and document what is occurring. If the aircraft are able to do something that makes it a lot quieter and people believe it, then maybe we should make sure that it is something that they continue to do in the future.

In addition to measuring what the noise levels are, we are trying to validate an accurate model. Say, for example, that it is sunny for the next two weeks. We would not get an accurate situation for the first two weeks of the measurements because it would be much quieter than it would be

than if we had an overcast situation. We need an accurate model so we can use it to predict different scenarios.

Q5 ***How will topography and multiple inversion layers be factored into the study?***

A In terms of our model that we will use, since this is not an FAA sponsored study, you will have a lot of leeway as to what you can do. The FAA likes to have the studies done the same at every airport because it allows them to compare the different situations. But this is Juneau's project, so we will take into account topography and make adjustments where necessary. I haven't experienced the multiple inversion layers so I will see what we can do about that. I do know the sound you get because of the inversion and that the humidity travels a lot more than in a non-humid environment.

Q6 ***How do you plan to separate out flightseeing aircraft from non-flightseeing aircraft? Many of the flights you see are not flightseeing aircraft, but might be flightseeing companies.***

Our primary method of differentiating is to get the records of what the operators are doing. Where the aircraft are flying will also give us an idea of what is a flightseeing versus non flightseeing flight.

Q7 How do you separate different types of noise from aircraft noise (for instance, AML's barge yard with containers and barges and forklifts going all day)? How is that noise separated from the time when helicopters or floatplanes are going over at the same time?

By having a network of monitors and people out there watching what happens, we can generally get a pretty good idea if it is an aircraft causing a noise event or a truck going by. If a truck goes by, you will pick it up at that site, but you wouldn't get a sequential event at one of the other monitoring sites, and that helps us differentiate. We have someone out there watching, and there is not much other choice other than just being around. We will not be thereall of the time, and something may happen, but usually those events start showing a pattern that we can identify just even by looking at it. When we have the spectral monitor out there, it actually records the sound digitally so we can play it back and determine if it was someone yelling into the microphone or if it was actually a helicopter.

Q8 How is wind factored out of the equation?

A If it is very windy, the wind raises the background noise. You may not even hear the helicopter noise or flight noise that day. We track what the wind is and if it is really windy, we generally don't use the data.

Q9 ***Can you hold the final report until October 4, until after the election, or are you bound by contract to do this on the 21st of September?***

A [Dunholter reffered the question to McKie Campbell, Baker Project Team Manager. At the CBJ's request, we agreed to present the results on September 21st and the contract specifies the draft report to be delivered by the 27th. As many of you know, work on this project was being prepared a long time before the initiative. I think there was a general feeling that if there was a decision to hold the data until after the election, people would ask "Why is the CBJ keeping it a secret?"

Q10 ***Who negotiated the contract for the 21st?***

A The CBJ. [Note: The contract was negotiated by CBJ Project Manager, Caryl McConkie. The project deadline was established in the CBJ Request for Proposals 00-380, dated April 28, 2000.

Comment: That's not the case at all. I think the timing of releasing the study results jeopardizes your study. I think the study is going to be looked upon with doubt because of the timing. The fact that the city negotiated a 21st date is just outrageous. They should have waited until October because this initiative was going on along time before the study came together.

Response: Facilitator Cathryn Collis asked the questioner to hold the issue and raise it with the people from the CBJ. She asked that questions in the meeting be kept focused on methodology and designing the study.

Comment: ***It may work for us if your study comes back. Obviously you are not going to reach any real conclusions, you're just going to say that there is a noise problem. But to have this reported back in September, only a couple weeks before the election, to me just invalidates the whole thing.***

Response: Collis stated that the consultants would pass that information along to the CBJ.

Q11 ***How far have you considered the statistical data of past weather and incorporated it into the study to present essentially a high and a low weather scenario?***

A We will get historical data. There are one hour NOAA weather reports, and we will go back a few years and get that data from NOAA. So that will give us hourly weather information in terms of wind speed direction, cloud cover and rain conditions, etc. That will be useful because it will probably present a typical condition here and help us determine what the noise is relative to a good weather day versus a bad weather day.

Q12 ***What procedures are you going to be using on the ground to accurately establish the aircraft's altitude?***

A Our primary way is to listen to aircraft radio. We also get the altitude by taking pictures and analyzing the size of aircraft, angle, etc. using our equipment.

Q13 ***Can you speak a little bit to the wave length frequency related to the effect on decibel rate?***

A Low frequency noise is a big wave, a slow oscillating wave. Those tend to not be knocked out by things such as error and atmosphere. That is why when you are farther from the airport you tend to hear that low frequency noise because the high frequency gets knocked out by the atmosphere which has the quicker waves.

Q14 ***Is increasing the decibel rate equal to the frequency?***

A When we measure noise using an A-weighed metric, we weight the frequency a certain way so that we relate it to how the human ear hears noise. But we will also get spectral data so we know the characteristics of the sound, especially that blade slap kind of sound which has a low frequency component.

Q15 ***The situation here in Juneau is different and we have other types of problems than people who live near an airport would encounter. Is your methodology the same type of methodology that you would use going into a community that had a problem with airport noise or have you factored some other aspects into your methodology to account for the differences in our situation?***

A We will do the study differently here than we would in a normal airport study. In a normal airport study you wouldn't do noise measurements. You would only do modeling for a DNL. That would be the only metric that the FAA wants you to use. You also would not go beyond the normal impact area which is around the 60-65 dB. If you look at the Part 150 study that was done for the airport, that was the boundary of the study. The FAA will let you do some other metrics like, single event contours, but what counts is just the DNL.

What we are doing differently here is a lot of actual noise monitoring that wouldn't normally happen because models aren't that good in this situation, especially for helicopter in route type of activity. So we need the actual noise measurements for our own purposes, as well as for you to have some level of confidence in the study results.

The meteorology is so different here than other places. The topography is different here than other places. Another factor that contributes to the uniqueness is that you have a limited area where you can build houses and you have a limited area where you can fly aircraft These areas unfortunately tend to be about the same places.

The metrics we are considering using are much beyond what we would normally do in a study. Also, if you remember the Forest Service study, which does low measurements, if the noise levels are less than 65 dB, they say there is no impact. We are way beyond that in what we are doing here and we can use lower values.

Q16 ***The issue here in Juneau is the string of helicopters that you see. How are you going to define a single event when it is a series of helicopters? Are you also going to be getting information from the flightseeing tours as to their patterns of how many helicopters they***

string together and is there going to be an attempt to define a single event in terms of a string of helicopters?

A With a string of helicopters it is usually almost one continuous event and the levels never really drop. They may drop down a little bit in between, depending upon where you live, but usually it's just one long event that happens. We could tell what the single event level (SEL) would be from one aircraft by dividing by the five. So energy wise, we would know from the duration and the aircraft speed what the single event level would be. From a mitigation standpoint, you might say you would rather have five individual events that last shorter than one continuous event that lasts longer. We can predict what the change would be relative to each metric if you looked at the difference. In terms of a single event, we will say, "This is how loud a single event is from a group of five, a group of group, etc."

Q17 ***From what you have indicated from your site locations I assume you must already have a design in mind. How could you conclude in advance that you would only use 15 long term sites (short-term sites of course could vary) and four indoor sites?***

A Every house is different and it is possible for us to do more indoor sites. My reason for limiting it to four, was it is time consuming to do it and inconvenient for people to do it. The four sites will give us a reasonable example. With windows open it is not much different, depending upon which house you are in. With the windows closed, we would predict a range. We would say that a well-insulated house gets 25 dB in noise reduction and a poorly insulated older house that doesn't have very good windows is going to get 18 dB in noise reduction. We would show you the range. We could do more but it would probably just fill in the range we end up with.

Q18 ***How did you decide upon fifteen long term sites?***

A The number of sites is always an issue, but fifteen sites, compared to what we do other studies, is a lot more sites than we monitor in those studies. There is a lot of coverage here. We find that it is better to spend more time at fewer sites than a little bit of time at a lot of sites. I would be more interested in leaving a monitor up at a few locations longer to get a good statistical sample, especially because it does vary here a lot. It varies so much from day to day that we can't expect to get reasonable data from just one day at a site.

Q19 ***Why is it fifteen and not ten?***

A Fifteen is a number that we thought was a reasonable, relative to looking at the area and dividing it up. You have two real distinct flying pattern areas, so we will have about seven to eight monitors on each end.

Q20 ***I have a question about the DNL equation that is mandated by the FAA. The equation includes an aspect that requires averaging whatever sound levels are measured over a 24 hour***

period. It is a troubling aspect to me as to why measurements made during a ten hour period would be averaged over a 24 hour period. What is or was the rational for averaging?

A You are a little bit unique here, but in most community environments, whether it is highway noise or aircraft noise, they do have night time activity. It is still unclear where the methodology came from, but it started with the EPA back in the 1970s and there are two schools of thought about it.

1. It is quieter at nighttime so they added 10 dB to the noise for that relative difference.

2. People are more bothered at night so they added 10 dB to to the levels.

I am not sure where the real factor came from, but we do find that when you go to an airport, more people complain about nighttime noise than anything else. When you are in a situation where you don't have nighttime noise, it can skew the results.

Q21 ***Concerning the short amount of time that you are going to be doing this study, will it have a detrimental effect on the results versus if you were going to do the measurements for an entire season?***

A We will be here for a good third of the season. I don't want to say the exact time so those things don't suddenly change after we leave if people know our exact ending date. We will get a good sample. What we will do is watch the meteorology. If we end up having a bunch of warm weather days, we'll stay out longer, or if we have a lot of days that are so socked in that they are not flying, we'll have to stay out longer. We'll get the history of what to expect, and if the conditions are different than the history, then we will stick around till we get a typical weather condition.