

# STATE OF WASHINGTON

## Off Road Vehicle Noise Study and Recommendations

**Prepared for:**  
Washington Interagency Committee  
For Outdoor Recreation

**November 2006**

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## Executive Summary

The 2006 Washington State legislature directed the Interagency Committee for Outdoor Recreation (IAC) to develop recommendations intended to improve control of excessive ORV noise statewide. The purpose of this study is to evaluate available approaches and to make recommendations for improving the control of such noise.

Riding off-road vehicles (ORVs) is a popular and growing form of recreation in Washington State. However, for some neighbors and other recreationists, the sound from ORVs can be a disruptive intrusion. Often, issues arise when ORV use is in close proximity to residences, either because new residences are built near an area traditionally used by ORVs, or because ORV usage is expanding into new areas. Washington State has laws limiting noise from various sources, including ORVs, and many local jurisdictions statewide have similar or supplemental rules. While effective enforcement of these noise rules could eliminate most problems, enforcement has not always been effective, for a variety of reasons. The inability of impacted neighbors and others to obtain satisfactory enforcement of ORV noise standards has led to litigation and has caused some citizens to turn to the legislature for solutions.

After reviewing existing regulations at both the state and national level, interviewing a variety of citizens and experts with an interest in the ORV noise issue, and conducting public outreach efforts, the authors of this report, ESA Adolfson and Geomatrix Consultants, present the following findings and recommendations.

### *The Adolfson-Geomatrix team finds:*

#### A) **Current Sound limits**

- 1) Washington State currently limits ORV sound levels to 105 dBA at 20 inches from the tailpipe, the highest of the 13 states that have such limits. Manufacturers, some ORV clubs, and many ORV users agree that reducing this level to 96 dBA (equivalent to almost half of the current sound level) is achievable and desirable. (p. 7)
- 2) One way Washington State sets sound limits is based on the concept of sound-generating and sound-receiving lands. While these laws could provide good protection from ORV noise, they are rarely enforced because the measurements are time consuming and require the presence of trained personnel during the infraction. These regulations can be modified in a way that simplifies noise measurement and makes enforcement more reliable. (p. 4, 8, 10)
- 3) Washington State has three ORV sound control methods: (a) “pass-by”, (b) “tailpipe”, and (c) “receiving property boundary.” Of these, the pass-by method requires highly controlled and difficult to obtain conditions for accurate results, which makes this method mostly ineffective as a tool for law enforcement beyond testing newly manufactured vehicles. (pgs. 4, 5, 9, A-18, A-21)

#### B) **Education, equipment, and training**

- 4) There would be fewer loud ORVs if there was more education targeting issues related to these vehicles. To ensure the effectiveness of such a program, additional personnel, training, and equipment would be needed. (p. 12)

C) **Monitoring program**

- 5) It is desirable to gather information on noise complaints and the response to these complaints to improve our understanding of the nature and extent of the issue and so that effective control options can be assessed. (p. 14)

D) **Other findings**

- 6) Noise control based on a subjective determination (“public nuisance regulations”) appears to be reasonable as it allows law enforcement without the need for special training and technical equipment. However, many jurisdictions have adopted such rules and found them difficult to enforce because they rely on the judgment of a complainant, a police officer, and judge or jury to have the same perception of what constitutes unreasonable noise. (pgs. 2, 4, 6)
- 7) Some jurisdictions have found that in areas where ORV sounds are not tolerable, an outright ban is more effective than adoption of a “nuisance” regulation. This approach is used in some cities. (pgs. 2, 4, 7)
- 8) Instituting buffers is usually ineffective because terrain, land cover, and certain characteristics of the sound can greatly affect the distance it may carry. A buffer sufficiently reliable for reducing sound to acceptable levels at property lines in all circumstances would require thousands of feet, which would amount to an ORV ban on many properties. (p. 2, 4, 6, 7)

***The Adolfson-Geomatrix team recommends:***

A) **Sound limits**

- 1) Changing the existing tailpipe noise limit for Off-Road Vehicles (ORVs) from 105 dBA to 96 dBA. (p. 8)
- 2) Abandoning the “pass-by” technique as a means for testing ORV noise (SAE J331a). (p. 9)

B) **Model ordinance for counties, cities, and towns**

- 3) Including two updated measuring techniques for assessing compliance with noise regulations: “equivalent sound level” and “maximum sound level.” (p. 10)
- 4) Expanding and clarifying the definition of a Class A environmental designations for noise abatement (EDNA) to include a 100 foot radius around any residence. (p. 10)
- 5) Basing noise enforcement primarily on complaints from neighbors, which is the current basis, and also allowing compliance assessments at the discretion of a noise control officer. (p. 11)
- 6) Allowing members of the public to pay initial costs for a noise compliance assessment, the data from which can, if warranted, be used by a local jurisdiction in enforcement proceedings. If a violation is proven, the cost of the assessment would be reimbursable. (p. 11)

**c) IAC grant program**

- 7) Expanding eligible applicants in IAC's Nonhighway and Off-Road Vehicle Activities (NOVA) Program, Education-Enforcement (E&E) Category to include non-profit groups that will engage in education efforts (such as ORV noise awareness training and sound testing at events and workshops). (p. 13)
- 8) Giving preference to E&E grant proposals submitted by local jurisdictions that have adopted an ORV noise ordinance. (p. 13)
- 9) Providing guidelines for purchasing sound measurement equipment for use with the model noise ordinance. (p. 13)
- 10) Giving preference to E&E grant proposals that facilitate neighborly resolution of ORV noise compatibility issues, including community forums, training classes, and on-loan sound measuring equipment. (p. 14)
- 11) Giving preference to E&E grant proposals requesting support for products that could have a broader application to other jurisdictions, including the production of publications that explain noise control regulations, development of citizen outreach programs to explain new noise ordinances, etc. (p. 14)
- 12) Setting aside a percentage of NOVA E&E grant funds specifically for noise related grants – on a trial basis and to help ensure funding availability. (p. 14)

**D) Monitoring program**

- 13) Encouraging or requiring recipients of E&E grants to report on the results of enforcement of noise regulations and providing the data to an enforcement or planning entity for compilation, publication, and follow-up to measure progress and any needed programmatic improvements. (p. 14)

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## 1. Problem Statement

The 2006 Washington State legislature directed the Interagency Committee for Outdoor Recreation (IAC) to develop recommendations intended to improve control of excessive ORV noise statewide. The purpose of this study is to evaluate the approaches available for addressing such noise and to make recommendations to improve the control of the excessive ORV noise.

Riding off-road vehicles (ORVs) is a popular and growing form of recreation in Washington State. But for some neighboring land uses and habitats, and for some other types of recreation, ORV noise can be a disruptive intrusion. Washington State has laws limiting noise from various sources, including ORVs, and many local jurisdictions around the state have similar rules. While effective enforcement of these noise rules could eliminate most problems, enforcement has not always been effective, for a variety of reasons. The inability of impacted neighbors and others to obtain satisfactory enforcement of ORV noise standards can lead to litigation and has also caused citizens to turn to the legislature for solutions.

A number of factors contribute to the complexity of controlling ORV noise. The following is a partial list of some of the complicating factors:

1. Although ORVs are required to meet both U.S. Environmental Protection Agency (U.S.EPA) and state noise emission limits, beyond the point of the original sale there are no established means to verify continued compliance.
2. Although ORV manufacturers have made improvements to reduce engine noise, some users install "aftermarket" devices specifically designed to produce very loud, deep sounds that can result in complaints from neighbors.
3. ORVs are almost always moving and their sound can be intermittent, making it difficult and time consuming to measure sound levels to see if an infraction is occurring.
4. ORVs are often operated on public lands where rules may be different from local ordinances. ORVs generally are operated in rural areas on both public and private lands, and there are often few law enforcement officers available to address a wide variety of law enforcement issues, of which noise complaints may not be the highest priority.
5. ORV use may occur in areas that are remote enough that there is no one around to complain, or where those that are aware of it do not consider it excessively noisy.
6. ORVs may be operated on private lands immediately adjacent to sensitive land uses, including residential areas, public parks, places of worship, or other uses where peace and quiet are commonly expected rights.
7. At a time when ORV use is increasing, some public ORV riding areas have been closed, and others are being encroached upon by residential development, all of which leads to ORV users either crowding into existing areas or riding in new areas, which can lead to complaints due to change in noise levels in those areas.
8. The majority of ORV use does not seem produce complaints about noise; however, it is difficult to target the users that prefer loud machines, and may not know or care about the effect the noise they generate has on other people, without placing a burden on those that do not generate complaints.
9. While sound levels from ORVs can be similar to noise from other small, gasoline-powered equipment such as lawn mowers and chainsaws that are typically used by private property owners, and city, utility, and construction crews, these other sources

typically are less closely regulated due to the perceived necessity of the activities and the different characteristics of the noise, such as duration and pitch.

10. Enforcement of most current rules depends on having properly calibrated sound measuring equipment and an adequate number of personnel trained in its proper use; many jurisdictions have neither.
11. Some jurisdictions also use a “nuisance” noise standard to limit ORV and other noise, which relies on a personal assessment of “unreasonable noise” by citizens and law enforcement officials.
12. Some jurisdictions ban ORV use altogether or set distance buffers as a means to simplify enforcement of noise rules, both of which can address the noise issue but also results in reduced opportunities for ORV use.

This study was developed on the premise that the recommendations requested by the legislature should address increased education and enforcement of reasonable ORV noise limits while supporting the continuation of the sport in Washington.

## **2. Approach and Methodology**

Sound is the sensation animals experience when vibrations caused by different pressures in the surrounding medium (usually air) affect the eardrum. Sounds occur when physical phenomena cause fluctuations in air pressure, as when vocal cords vibrate air to cause speech, stereo speakers vibrate air to emit music, or a tree falls in a forest. For a sound to be audible, the fluctuations in air pressure must occur within a range of frequencies the listener's ear can detect, and the amplitude of the changes in pressure must be large enough to exceed the listener's threshold of hearing. Noise can be defined as sound which, due to the source, the nature, loudness, timing, or some other characteristic of the sound is unwanted by, or in some way disturbing to the listener. Sound can be measured; whether a sound is noise is often a more subjective determination.

A key issue of this report is when sound from ORVs should be regulated as noise. As such, the remainder of this report uses the terms more or less interchangeably.

### **Reviewing Relevant Laws and Regulations**

A consultant team comprised of ESA Adolfson and Geomatrix Consultants, Inc. reviewed federal, state, and local laws and regulations pertaining to ORV noise, including U.S. Environmental Protection Agency, U.S. Department of Agriculture Forest Service (Forest Service), U.S. Department of Interior National Park Service, the U.S. Department of Interior Bureau of Land Management, 10 states (including Washington State), the Washington State Department of Natural Resources, and numerous counties and cities both inside and outside of Washington State. The consultant team also contacted agencies in some jurisdictions across the country to learn what the rationale has been for various approaches, and what works well or is not working. Section 3 of this report presents a summary of the results of our research, the details of which are included in Appendix A.

## Collecting Public Input

IAC staff and the consultant team solicited input from stakeholder groups, ORV users, local jurisdictions, and interested citizens during development of the proposed strategies for addressing excessive ORV noise. The following techniques were used to solicit public input for this study:

- Conducted stakeholder interviews with members of the ORV Noise Solutions Advisory Committee;<sup>1</sup>
- Held two public interactive workshops in Lacey and Ellensburg, Washington; and
- Posted a web-based survey to solicit input on a range of noise control options.

Section 4 presents the results of the public participation efforts included in this study.

## Developing Recommendations

The consultant team and IAC staff examined many options for addressing ORV noise concerns revealed in both the research on other jurisdictions and through the public involvement process. The recommendations in Section 5 represent the options that would be the most effective ways to address the ORV noise issue considering many factors. Factors considered include understandability, enforceability, technical and technological constraints in both noise control equipment and noise measurement methods, regulatory effect on individuals and businesses, and the rights of residents to reasonable use of their property, and the reciprocal rights of neighbors to be free of noise intrusion. The recommendations include:

- Model ordinances for noise limits that would improve enforceability
- Equipment needs
- Personnel skill and training
- Estimated range of costs for implementation
- Grant program, including evaluation criteria
- Field noise testing techniques
- Monitoring program.

## 3. Review of Relevant Laws and Regulations

The ESA Adolfson-Geomatrix Team conducted a review of existing laws and regulations pertaining to ORV noise. The results of this review are summarized below and described in further detail in Appendix A. Federal, Washington State, and local (counties, cities, and towns) regulations were reviewed.

There are several methods for measuring vehicular sound that have been employed in noise regulations, including:

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<sup>1</sup> The ad hoc Advisory Committee was established by an IAC staff committee in May 2006 to assist with this project, including consultant selection and review of the draft reports. See page 35

- Measuring with a sound meter sound near the tailpipe of the vehicle (referred to as the tailpipe method)
- Measuring sound as a vehicle passes by 50 feet away (referred to as the pass-by method), and
- Measuring sound at a receiving property boundary line.

Washington State has regulations that apply to ORVs and that use either the pass-by or the tailpipe method (Revised Code of Washington [RCW] 46.09), Washington Administrative Code [WAC] 17-058), and also has regulations for sound levels at the receiving property boundary line (RCW 70.107, WAC 173-60).

The pass-by method, which is specified in both federal and state regulations, requires highly controlled conditions to obtain accurate results. These conditions are difficult to obtain in many outdoor areas, which makes this method mostly ineffective as a tool for law enforcement beyond testing newly manufactured vehicles.

Several states including Washington State have also adopted the tailpipe method, but have set the allowable sound levels at a variety of levels. Washington State has the highest allowable sound level of any state employing the tailpipe method, at 105 dBA. Of the 12 states besides Washington State that were reviewed, the range was from 94 dBA to 103 dBA, with a majority using 96 dBA.

In Washington State, sound level limits at property lines have been established for over twenty years and are based upon the land use generating the sound and the land use of the receiving property. This study focuses on protecting the most sensitive receiving properties, which include residential areas, hospitals, and places of worship. The general sound levels allowed at property lines of these sensitive receivers are 55 dBA during daytime hours and 45 dBA at night. There are several exemptions and allowed exceedances of these levels, making the measurement and enforcement of a violation difficult, particularly for intermittent sound levels that are typical of ORVs. It is also important to understand that a vehicle that complies with the Washington State tailpipe limit of 105 dBA could easily exceed these property line limits simply by coming too close to a property line.

In addition to being subject to the state noise limits, some jurisdictions employ their own environmental noise limits and may also apply "nuisance" or "public disturbance" rules as well, or exclusively. Noise rules based on whether a noise disturbs someone sufficiently to be considered a nuisance often require subjective judgments by enforcement personnel. Consequently, such rules can be difficult to enforce objectively and consistently because they depend on the perception (e.g., hearing ability) of the enforcement officer along with any predisposition or attitude the officer may have regarding the noise source. Despite this limitation, many local jurisdictions have nuisance noise laws, and some specifically mention recurrent ORV noise as potential nuisance that can be prosecuted under those laws.

Some jurisdictions have found that ORV noise is simply not reasonable anytime and have banned ORV use either in residential areas or throughout the city. Some jurisdictions have tried buffers. We do not recommend instituting buffers because terrain, water bodies, land cover, and certain characteristics of the sound can greatly affect the distance it may carry. A buffer that would reduce sound to levels allowed at property lines under state law in every case might need

to be more than a thousand feet, which would amount to an outright ban on many properties, and could be difficult to measure for enforcement purposes.

Enforcement officials in several jurisdictions indicated that ORV noise was often a lower priority than other law enforcement issues. Some also said that the difficulty of obtaining a conviction, which stems from the difficulty in obtaining accurate sound measurements, tended to discourage enforcement of either the pass-by or the property line sound level limits. Another difficulty of enforcing noise limits is having an enforcement officer arrive while the alleged violation is still going on, due the intermittent nature of ORV sound.

## **4. Public Participation**

As described in Section 2, the following techniques were used to solicit public input for this study:

- Conducting stakeholder interviews with members of the ORV Noise Solutions Advisory Committee;
- Holding two public interactive workshops in Lacey and Ellensburg, Washington; and
- Posting a web-based survey to solicit input on a range of noise control options.

Each of these techniques is described in more detail below, followed by a general set of results and conclusions from the public participation effort.

### **Stakeholder Interviews**

Members of the ORV Noise Solutions Advisory Committee and other individuals recommended by the committee were interviewed via telephone. The purpose of the interviews was to solicit input and recommendations for development of a statewide program to address ORV noise concerns. The consultant team and IAC staff developed interview questions to help uncover the nature of the problem and to identify possible solutions. The committee is made up of ORV recreationists, industry noise experts, law and code enforcement specialists, and individuals who have raised concerns about ORV noise as homeowners. Appendix B contains the interview questions and a list of committee members and others interviewed during September 2006 in preparation for this study.

### **Public Workshops**

IAC staff conducted two open public workshops to solicit input from key stakeholders, citizens, and local jurisdictions. The workshops were held in Lacey, Washington on October 10<sup>th</sup> and Ellensburg, Washington on October 19<sup>th</sup>, with about 75 people attending both workshops in total. At each workshop, IAC staff and the consultant team provided an overview of the study purpose and timeline, background information on existing ORV noise regulations, and key issues regarding ORV noise reduction options. After the presentations, workshop participants were divided into small groups with an assigned facilitator. Each group was asked to answer a series of questions regarding options for addressing ORV noise. Following the small group breakout sessions, a representative from each group reported its findings to the entire audience. The two workshop summaries are available in Appendix G.

## Web-based Survey

To solicit public input from interested parties not available to attend the workshops described above, a web-based survey was posted on the Internet from October 18th through November 6th, 2006. Survey participants were self selected and non-random, thus it was not a representative scientific poll in which the number of respondents in favor of a particular view was significant. Rather, it was a way of obtaining input from a wide variety of interests while exploring the range of attitudes. The information on how to access and complete the survey was posted on IAC's website and emailed to 79 people who expressed an interest in this study. Recipients were encouraged to distribute the information to other interested people. Over 2,100 responses were received within that time period. Some of these respondents were likely from outside Washington State, as there was no limit placed on where a respondent lives (we found Internet links to the questionnaire on national bulletin boards). Survey questions and results are included in Appendix C.

## Results of the Public Involvement Process

Participation in the public process (workshops and web survey) appears to have been predominantly by members of the ORV community, although non-ORV users, motorcycle industry representatives, and law enforcement officials also participated. Public input from the three techniques described above resulted in a diversity of views on ORV noise solutions. Although there was no consensus on any one approach for addressing ORV noise, we heard some consistent themes:

1. **Conflicting views on the scope of the noise problem.** Many ORV users don't perceive that vehicle noise is sufficiently serious to warrant fixing with scarce public dollars, that it is a few sensitive people making the issue seem larger than it really is. Others say that it is often a very few "bad apples" that are making the excessive ORV noise. However, some residents who live near either public or private ORV use areas do believe there is a problem that needs to be addressed by better enforcement and/or new regulations. Many ORV recreationists agree better regulation of excessive ORV noise is needed because closure of ORV areas due to noise complaints is the most serious threat faced by ORV recreation today.

Some ORV riders emphasized the need to self-regulate so that the problem riders are addressed by the ORV community. Other participants indicated that self-regulation, while helpful, does not reach or is ignored by the worst offenders. Some people, including many ORV users, want tickets issued to the "bad apples" to set an example for other riders.

Some participants believe that a "nuisance" standard for ORV noise or an effective buffer that keeps noise out of homes and the area surrounding homes would enhance the ability of law enforcement to enforce the noise standards.

2. **Need for better enforcement of existing laws.** Some workshop and interview participants expressed the opinion that new laws weren't necessary, but rather the problem was inadequate enforcement of existing laws, particularly for the few "bad apples" who cause the most problems. Some felt that law enforcement officers, even those with training, often do not issue citations because violations are difficult to prove under the current law. Both ORV users and non-users acknowledged that compliance with the current laws requires technical equipment, training, and expenditure of time and

other resources that are often not available. Generally, there was agreement on the need for better equipment and training for law enforcement personnel.

3. **Adopting stricter tailpipe limits.** Conflicting views arose within the ORV community on this option. Some industry groups, motorcycle manufacturers, and ORV user groups support stricter tailpipe limits because this higher standard is already being applied in other states, is easily achievable, and because they feel this would eliminate the majority of the problem cases, **if enforced**. Some individual ORV users didn't support this change because they feel that ORVs, among all noise-makers, are being singled out unfairly and that noise impacts are not a problem in the areas that they ride. Overall, impacted residents and some ORV users others support this change and pointed to other states where stricter limits have already been adopted successfully. There were several suggestions for ways to implement new standards gradually to reduce the costs it could impose on operators of older vehicles. Examples of phased implementation in other states are discussed in Appendix A.

When the question of prohibiting the sale of aftermarket products that would cause or allow vehicles to exceed tailpipe limits was raised, many participants said that it was impractical to do so. They pointed out it is not always possible to identify which product will cause a particular vehicle to exceed a particular sound level, and that Internet sales of aftermarket products would replace local sales if Washington law was too restrictive.

4. **Need for increased education among ORV users.** There is general agreement from both ORV users and impacted residents that more education for ORV users would be helpful; however, there is no consensus about how the education programs should be implemented. Suggestions ranged from a state-sanctioned and supported education program delivered at the point of sale, to relying solely on local ORV groups to conduct peer education programs in the field, to requiring users to get this training when they get their ORV tags.
5. **Concerns about regulations that are overly restrictive.** Again, many ORV users do not believe that there is a serious problem with ORV noise and that it would be unfair to further restrict an entire group with all-encompassing anti-noise regulations because a few "bad apples" ignore current rules. Generally, ORV users also expressed concern about adding restrictions to the time of day or days of the week that ORVs could be operated. The concern is that this would have a major impact on their sport by limiting options for riding outside of the normal workday.

For some participants, the concerns about new regulations became concerns about property rights and the ability to do whatever they want on their own property. Others pointed to the effects that certain regulations might have on ORV businesses or ORV racing, suggesting exemptions might be warranted.

Others, including impacted residents prefer a range of options, including adopting new noise regulations at the state level, implementation of a "nuisance" standard for ORV noise at the state or local level, requiring buffers in residential areas where ORV uses are allowed, banning ORV uses entirely in some residential areas, and limiting hours of daytime use.

6. **Local control over regulations.** A consistent theme from the Ellensburg workshop and in the web-survey is that local control is important. Some workshop participants

suggested that local jurisdictions should be allowed the flexibility to adopt regulations that meet local needs. In other words, if the state adopts stricter ORV standards, many participants believe that local governments should have the ability to adopt less or more strict standards to fit their unique situation.

Others believe that local control has not resulted in effective enforcement or efforts to resolve neighborhood conflicts. Concerns about local control focused more on suggestions about property line sound level limits, buffers, and use restrictions. Some ORV users also emphasized the need for uniform standards around the state so that one knows that wherever they take their ORV it will comply. This was specifically emphasized in relation to the tailpipe limit.

## 5. Recommendations

This section includes an overview of our recommendations for improving control of excessive ORV noise. These include modifications to regulations and possible methods to distribute grant funding to assist in education and enforcement on this issue. Further details on these recommendations are included in three appendices:

- Appendix D – Recommended Noise Ordinance Components
- Appendix E – Recommended Model Noise Ordinance
- Appendix F – Equipment and Personnel Training Recommendations

### Revisions to State ORV Tailpipe Noise Limit

#### **Change Tailpipe Noise Limit for ORVs to 96 dBA**

The Adolfson/Geomatrix team recommends changing the existing tailpipe noise limit for ORVs [RCW 46.09.120(1)(e)] from 105 dBA to 96 dBA<sup>2</sup> to make it consistent with the lower limit used in most other states in the U.S. that regulate sound levels at the tailpipe. If enforced, this would reduce the potential for increasing noise conflicts from ORV use on public and private lands. However, tailpipe limits do not ensure that ORVs meet decibel standards at the receiving property (these standard are addressed in Section 5.2). We based our recommendations on the following information: The tailpipe limit used most often by other states that employ ORV tailpipe noise limits is 96 dBA (see Table A-4). In contrast, the current Washington state ORV tailpipe noise limit of 105 dBA is the highest (i.e., loudest) in the nation.

1. Reducing the limit from 105 dBA to 96 dBA would represent almost a halving of the level of noise allowed from ORVs.
2. Setting the tailpipe noise limit at 96 dBA would make Washington consistent with other states, help drive the market for ORV vehicles that comply with this limit, and reduce confusion and potential conflicts for ORV users who bring ORVs from other states.
3. Most new ORVs sold in Washington (and throughout the US) are designed to produce 94 dBA or less when new comply with a 96 dBA limit. Thus, most vehicles would continue

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<sup>2</sup> With the limit to be enforced by measurements consistent with SAE J1287.

to comply with a 96 dBA standard even with some degradation in the noise-muffling systems over time.

4. The change to a 96 dBA limit is supported by research conducted by both the Motorcycle Industry Council, Inc. (MIC) of California and the American Motorcyclist Association (AMA) who have extensively reviewed why a 96 dBA tailpipe noise limit is both practical and reasonable. Based on these reviews, both organizations have recommended that a 96 dBA limit be enforced in place of other less restrictive tailpipe limits.
5. MIC and AMA findings suggest a 96 dBA limit is the lowest noise limit that does not prohibit the use of ORVs that meet the EPA pass-by sound limits.
6. MIC and AMA recommend following the tailpipe test procedure outlined in SAE J1287. This test procedure, originally published in 1980, provides a quick, cheap, and easy means to measuring tailpipe noise. MIC has published thousands of manuals outlining this test procedure, in addition to providing useful background information on noise or ORV types.
7. RCW 46.09.120 outlines a tailpipe testing procedure, which is based on SAE J1287.

### **Abandon the Pass-By Test as a Means for Testing ORV Noise**

In addition to this change, we recommend that the noise level pass-by test procedure (SAE J331a) adopted by Washington State be abandoned as an alternative means for testing ORV noise levels. First, the SAE J331(a) is too difficult to accurately and defensibly replicate due to potential variations in terrain, weather, and test conditions. Second, by lowering the tailpipe standard, the levels required in the current law for the pass-by test would be less restrictive than the tailpipe test for some and possibly most vehicles, setting up an ambiguity in the law. And third, the direct tailpipe test procedure is simple and easy to replicate and is sufficient for assessing tailpipe noise levels.

### **Model Ordinance for Environmental Noise Limits**

The consultant team was charged with developing two model ordinances, one of which would impose relatively stringent limits on ORV noise and increase enforceability, and one that would be somewhat less restrictive with regard to ORV noise. The model noise ordinance structure recommended in this section is based on existing WAC environmental noise rules included in WAC 173-60 *et seq.* The primary differences between the recommended model ordinance and WAC 173-60 are a change in the noise metrics used to determine compliance, modifications to the definition of residential uses, options for reducing allowable sound levels during the early morning and late evening hours, and a provision to allow citizens to sponsor data collection by qualified personnel to assess compliance and use in enforcement proceedings.

The following sections describe the components of an effective local noise control ordinance. See also Tables D-1 and D-2.

Appendix D presents new noise metrics and sound level limits, and a comparison table showing how these components would work together, Appendix E includes model ordinance language incorporating our recommendations for the stringent approach. Jurisdictions choosing a more permissive approach could select sections of the model ordinance that would help them to achieve their objectives, while leaving out some of the more stringent measures.

### **New Noise Metric for Compliance Assessment**

We recommend including new definitions in the model noise ordinance to require two new noise measures for assessing compliance. Both metrics are typically used in assessing compliance with the noise limits applied by a variety of federal and international agencies. These metrics, called “equivalent sound level” ( $L_{eq}$ ) and “maximum sound level” ( $L_{max}$ ), can be measured directly using modern integrating sound level meters, and thus do not require subsequent data processing to determine compliance or violation of a noise limit. These are described in further detail in Appendix D.

### **Modified Definition of Sensitive Receiving Locations**

We recommend expanding and clarifying several definitions for use in assessing compliance with the environmental noise limits.

#### **Definition of Class A Environmental Designations for Noise Abatement (EDNAs) –**

Environmental Designations for Noise Abatement are defined under WAC 173-60 and are often incorporated into local noise regulations. Class A EDNAs include residential uses, but this has left open to interpretation whether a residence on a farm or forest parcel is a residential use or part of a commercial (Class B) or industrial use (Class C), which would be the typical classifications for agricultural and silvicultural lands. We recommend expanding the definition of Class A EDNAs to include a 100-foot radius around any residence, even if located on a larger parcel of land that would otherwise be considered agricultural or forest land otherwise designated Class B or C. This would protect all such sensitive receivers without causing an undue burden to protect non-sensitive lands such as land used for agricultural or silvicultural purposes.

### **Possible/Optional Time of Day Restrictions on ORV Use**

The current noise limits (WAC 173-60) are 10 dBA lower during nighttime hours (i.e., 10 p.m. to 7 a.m.). To provide additional protection for residential use areas from ORV noise, a jurisdiction can apply restrictions on ORV use based on the time of day. For example, some jurisdictions reduce the daytime noise limits by 5 dBA during evening hours (typically 7 p.m. to 10 p.m.). It is also possible to prohibit ORV use during evening hours and/or during nighttime hours. The recommended model ordinance for environmental noise (Appendices D and F) includes several options for such restrictions. These restrictions would not prohibit operating ORVs at these times but would require that they be operated at lower throttle levels, which should generally allow for a user returning to a trailhead at the end of the day without causing a violation. It is worth noting, however, that ORV users responding to surveys and questions during public meetings were almost universally opposed to any such time of day restrictions. In many cases, their reasoning is that very few people ride ORVs at these times and that even fewer ride during these times in areas where noise would be a problem.

### **Primary Enforcement Mechanism**

We recommend that the primary basis of noise enforcement actions remain as it is now, based on complaints from affected neighbors. In this way, no actions will be necessary in situations where ORV noise is not adversely affecting neighboring properties, but enforcement will be possible in circumstances where ORV noise is received on and adversely affecting residential uses. As an option for the more stringent version of the model ordinance, we recommend allowing local jurisdictions to also conduct compliance assessments at the discretion of the noise control officer.

Under this more stringent policy, random spot checks could be performed to ensure that users are in compliance.

### **Citizen-Sponsored Compliance Assessment Allowed**

One of the key issues that arose from citizens who have been adversely affected by ORV noise is that they made repeated complaints to local jurisdictions but received no satisfactory response. In addition, several people stated that they have had to pay most or all of the costs of enforcement actions to eventually curb noise from illegal ORV use on neighboring properties. To remove this burden on the potentially affected public, we recommend including a provision that specifically allows members of the public to sponsor (i.e., pay the initial costs for) a noise compliance assessment, the data from which can then, if warranted, be presented to and used by the local jurisdiction in enforcement proceedings. For example, a citizen or group that had filed two or more written noise complaints without any law enforcement action taken may hire a qualified expert to measure noise levels and submit an affidavit as evidence. In the event the violation is proven, the citizen or group would be compensated for the cost of hiring an expert and equipment and any other costs incurred in filing the complaint. Such a process would be subject to stringent guidelines to prevent frivolous proceedings. But if the compliance assessment documents noise limit violations, the citizen sponsor could then recover all costs from the offender and/or from the local jurisdiction.

### **Grant Program**

IAC administers several grant programs for recreation and habitat conservation purposes and has extensive experience in grant administration and management. Consequently, the recommendations in this report focus on expanding and refining grant program priorities and program criteria to help accomplish some of the other recommendations of this study.

### **Existing IAC Education-Enforcement Grant Program**

The Nonhighway and Off-road Vehicle Activities (NOVA) Program helps develop and manage recreation opportunities for many activities including riding all-terrain and four-wheel drive vehicles. The NOVA grants are intended to allow various user groups and agencies to provide quality opportunities for recreationists – opportunities that satisfy user needs, are environmentally responsible, and minimize conflict between user groups.

NOVA Program grant funds are available in four categories:

- Nonhighway Road
- Nonmotorized
- Off-Road Vehicle
- Education-Enforcement

The Education-Enforcement category of funds most closely fits the objectives of this study and would be the best for facilitating implementation of the recommendations in this report. Funding under the Education-Enforcement grant program is intended to encourage responsible recreational behaviors through positive management techniques.

Under RCW 46.09.240, the following entities are currently eligible to receive Education-Enforcement grants:

- Counties
- Cities and towns
- State Agencies
- Federal Agencies
- Native American Tribes

Two primary program activities are currently eligible for Education-Enforcement (E&E) funding:

**User Education.** This program may include information on safety, land use ethics, laws, opportunities and environmental issues. Activities covered under the existing program include:

- Engaging individual NOVA users (preferably by field contact)
- Engaging organized NOVA user groups (preferably by field contact)
- Providing recreation information and (E&E) materials for public distribution to equipment dealers and other public and commercial outlets
- Developing in-school programs geared toward current NOVA users
- Working with advisory committees
- Preparing information for maps, web pages, and other information sources.

**Law Enforcement.** Direct officer contact programs with NOVA recreations are eligible for funding, especial those that encourage responsible recreation behaviors through positive management techniques. Eligible activities include:

- Resolution of conflicts and complaints
- Issuing warnings and citations to violators
- Protection of resources and faculties
- Vandalism prevention.

### **Recommendations for Expanding Existing Grant Program**

Based on the public input received during the months of September through November 2006 via stakeholder interviews, public workshops and a web-based survey, a need for greater education and enforcement was a common theme. Provided below are several recommendations for expanding and strengthening the existing E&E program.

- 1. Expand the list of eligible applicants to include non-profit citizen and ORV groups.**  
As indicated above, five categories of applicants are currently eligible to receive E&E grants. Based on public input received during development of this study, a need for greater user education, especially peer-to-peer education, arose as a key recommendation. The state legislature should consider expanding the list of applicants eligible to apply for E&E grants to allow citizen and user groups to assist with locally based noise control

education efforts with particular emphasis on peer education. It is recommend that such groups to be defined by IAC be added to the list of eligible grant applicants. Support grants could be provided to ORV rider groups to increase rider awareness of the negative effects of excessive ORV sound and the resulting impact on the surrounding community. In addition, these groups could utilize these grants to demonstrate sound testing procedures at ORV events and workshops.

- 2. Give preference to E&E grants submitted by local jurisdictions that have adopted an ORV noise model ordinance.** Currently, municipalities are eligible to receive E&E grants under RCW 46.09.240. In order assist local jurisdictions that adopt an ordinance addressing ORV noise, greater weight could be given to these jurisdictions when they apply for E&E grants for training or equipment. The intent of this preference is to encourage local jurisdictions to utilize the E&E funds to inform citizens and ORV users about the noise issues and effective procedures for initiating a complaint. Such funds could be used by traditional law enforcement, code enforcement, health, or planning departments, for example as part of an overall ORV education program. Trainings, publications and sound measurement equipment are already eligible for E&E funds under the existing criteria. Priority for noise control could be established in the criteria in IAC Manual 13, by adding a specific number of points that would be awarded for projects with a noise control component, or by amending IAC's NOVA plan to include a specific policy on noise that would then be referenced in scoring criteria #1, Need, or #2, Need Satisfaction, in IAC manual 13.
- 3. Provide guidelines for purchasing sound measurement equipment for use with the model ordinances.** As mentioned in #2 above, sound measurement equipment is currently eligible for funding under the existing E&E grant program policies. One of the comments heard repeatedly from interested citizens was the need for clarity when it comes to acceptable sound measurement equipment and usage. IAC may choose to provide guidance to local jurisdictions on the type of metering equipment to purchase to be consistent with the model ordinance. This could be accomplished by adding a brief section on appropriate noise equipment (see Appendix F for a description of appropriate equipment) in IAC Manual 13 under equipment policies, and limit eligibility of E&E funds to such equipment.
- 4. Encourage projects that facilitate neighborly resolution of ORV compatibility issues.** Compatibility is already discussed in the NOVA plan policies. IAC Manual 13 could expand on the possible range of projects that could facilitate compatibility by describing projects examples. Examples might include holding community forum to discuss local ORV issues and solutions, providing classes to educate the community on ORV noise and noise regulations, and funding for local jurisdictions to have meters that could be checked out for use in investigating ORV noise concerns.
- 5. Add new criteria to reward projects that could apply statewide or be replicated in other jurisdictions.** Under this recommendation, E&E programs that have a statewide benefit or that could be easily replicated in other jurisdictions would receive additional points in the E&E project scoring process. This could involve adding a new scoring criterion to reflect statewide benefit, or it could be accomplished through amending the NOVA plan and referencing the policy in the scoring criteria. Example projects include a

pamphlet explaining noise control regulations or development of a citizen outreach program to explain a new noise ordinance.

- 6. Set aside a percentage of NOVA E&E grants for addressing noise issues.** IAC may wish to consider setting aside a certain amount of existing NOVA E&E funds specifically for funding noise education, training and enforcement in jurisdictions where ORV noise issues are a priority. It is recommended that these E&E funds be set aside during a trial period for addressing noise issues. If there are not enough applicants requesting funds for noise control issues, any remaining funds could revert back to the full E&E program.

## **Monitoring Program**

It would be valuable to encourage or require recipients of grants for ORV enforcement and education activities to report on results of enforcement of ORV noise regulation. The forms provided in attachments 1 and 2 (Appendix F) include most of the basic information that needs to be collected to begin a database that can help in understanding the nature of noise complaints and their geographic distribution, and thus help to improve how Washington State addresses this issue.

In the short term, hard copies of the data forms could be provided to an enforcement agency such as Department of Ecology or the Department of Health, or to a planning agency such as the Department of Community, Trade, and Economic Development, to be compiled and periodically reviewed. The forms could eventually be automated through a web application that would allow the agency to collect data at the same time it is entered for the local jurisdiction. The data would include addresses, which would allow mapping of the data through a GIS application. This information would be helpful for local jurisdictions that are considering changes in how they address ORV noise, as well as those that have made recent changes such as adoption of a local ordinance, training of law enforcement personnel, or distribution of educational materials. Eventually, the data collected could include a follow-up to find out if the complaint resulted in a warning, citation, or other enforcement action. To expand this idea further, the web application could become a statewide “hotline” that could be filled out initially by someone filing a complaint. The web site could be designed to forward the complaint to the local jurisdiction responsible for noise enforcement, which would then complete the form once an enforcement action had been taken. This might not substitute for a call for immediate enforcement action, but could work well for ongoing violations or perceived violations.

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## **Appendix A – Review of Existing Laws and Regulations**

## Appendix A – Review of Relevant Laws and Regulations

The ESA Adolfson-Geomatrix Team conducted a review of laws and regulations pertaining to ORV noise. The results of this review are summarized below. For clarity, regulations are discussed separately by federal, Washington State, and local (county, city, and town) levels.

### Federal ORV Noise Rules

This section addresses federal ORV noise rules, including those required by the Environmental Protection Agency (EPA), US Department of Agriculture Forest Service (Forest Service), and the US Department of Interior National Park Service (National Park Service) and Bureau of Land Management. Regulations are discussed separately by agency.

#### Environmental Protection Agency

The EPA has established sound level limits for motorcycles sold and operated in the United States (Subpart D of 40 CFR 205.152). This regulation sets noise emission limits for both on-road and off-road motorcycles based on engine size and date of manufacture, with the assessment to be based on the sound level during a drive-by (pass by) test at a distance of 50 feet. Table A-1 summarizes the EPA pass-by test noise limits for off-highway vehicles.

**Table A-1. EPA Off-Road Motorcycle Noise Emission Limits**

Engine Size	Model Year <sup>(a)</sup>	Sound Level Limit dBA
Less than 170cc	1983	83
	1986	80
Greater than 170cc	1983	86
	1986	82

**Source:** 40CFR205.152

<sup>(a)</sup> Model year includes the year listed and any subsequent year

The EPA does not have specific rules that address noise from 3- or 4-wheeled recreational vehicles including all-terrain vehicles (ATVs) and dune-buggies; however, most states interpret 40 CRF 205.152 as also applying to these vehicles as well. Off-road vehicles (ORVs) as defined for this study include off-road motorcycles, dune buggies, and ATVs.

The specific procedures used to measure motorcycle pass by noise for compliance with EPA limits are found in Appendix I of 40 CFR 205 subparts D and E. These procedures are summarized in Section 1.2.2.1 of this Appendix.

EPA requires motorcycles sold in the United States to have a placard on the unit’s tailpipe clearly indicating whether the vehicle is designed to meet EPA standards, or is designed for closed-course competition (to which these limits do not pertain).

### **Forest Service**

Presidential Executive Order 11644 (as amended in 1977) mandates that agencies managing public lands under federal control develop regulations and instructions to designate specific areas and trails on which ORV use is permitted or restricted as well as regulations prescribing operating conditions that apply to ORVs in designated areas and trails. Based on this order, the Forest Service, under the US Department of Agriculture, adopted 36 CFR 261 regarding off-highway vehicle use. This federal rule does not specifically address ORV noise. However, based on the Forest Service use restrictions and regulations, it is expected that ORV noise issues would be self-mitigated and therefore do not need specific regulatory language. The EPA ORV pass-by noise limits (see Table A-1) apply to ORVs sold and used throughout the United States and therefore are applicable to Forest Service land.

### **National Park Service**

The National Park Service, under the direction of the US Department of the Interior, promulgated federal rules regulating off-road vehicles based on the Presidential Executive Order 11644 (as amended in 1977) in 36 CFR 4.10 and 36 CFR 7. Off-road vehicle use is prohibited in national parks except on park roads and parking areas and on routes and areas designated for off-road use. Designated use must be codified in Part 7 of the rule and may only be designated in national recreation areas, national seashores, national lakeshores, and national preserves. A survey of special regulations for national parks in Washington reveals that authorized ORV use is non-existent on National Park Service land except for designated snowmobile travel routes<sup>3,4</sup>. Consequently, the National Park Service does not have rules that specifically address ORV noise.

### **Bureau of Land Management**

Under the direction of the US Department of the Interior, the Federal Bureau of Land Management promulgated off-road vehicle rules in 43 CFR 8340. ORV use is currently limited by designated areas that are “open” (permitted anywhere), “limited” (in some way restricted), or “closed” (ORV use is prohibited). The Bureau of Land Management designates these areas during the land use planning process on an area-by-area basis, provides maps and appropriate signage, and informs the public through the Federal Register and local media.

Bureau of Land Management land in Washington is administered through the Oregon State Office and recently (August 2005) published the *Final Supplementary Rules on Public Land in Oregon and Washington*. These rules were published to promote consistency with federal and state rules, including the Washington Department of Natural Resources (see Section 1.2.3 of this Appendix). The supplementary rules require that ORV use comply with federal Bureau of Land Management rules and state laws. ORVs are therefore subject to the Washington State noise rules when operated on Bureau of Land Management land; these rules are outlined below in Section 1.2.1.

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<sup>3</sup> <http://www.washingtonwatchdog.org/documents/cfr/title36/part7.html>

<sup>4</sup> It should be noted that the Bluewater Network challenged these rules in a lawsuit filed in November 2005 seeking widespread closures of ORV use.

## Washington State Noise Laws

Washington State statutes and regulations address sound level limits for ORVs specifically and through more general rules that apply to all non-exempt noise sources that may or may not include ORVs. In general, environmental noise laws applicable to non-exempt sources are more restrictive for ORV noise than are ORV-specific noise limits. Following is a summary of the Washington State noise rules.

### Washington Administrative Code (WAC)

#### WAC 173-60

The Washington Administrative Code (WAC) Chapter 173-60 establishes limits on sounds crossing property boundaries based on the Environmental Designation for Noise Abatement (EDNA) of the sound source and the receiving properties. This rule allows individual local jurisdictions to define EDNA classes based on zoning or land use designations. In the absence of such definitions, the WAC limits are based on land use. WAC 173-60-030 generally defines Class A EDNAs as residential use, Class B EDNAs as commercial or business use, and Class C EDNAs as industrial and agricultural use. The allowable sound levels for the various source and receiving properties are shown in Table A-2.

**Table A-2. Washington State Maximum Permissible Sound Levels**

EDNA <sup>(a)</sup> of Noise Source	EDNA of Receiving Property (dBA)		
	Class A (Residential) Day/Night <sup>(b)</sup>	Class B (Commercial)	Class C (Industrial/ Agricultural)
Class A (Residential)	55/45	57	60
Class B (Commercial)	57/47	60	65
Class C (Industrial/Agricultural)	60/50	65	70
<b>Daytime/Nighttime hourly Ln sound level limits for residential noise received on residential property<sup>(c)</sup></b>			
<b>Lmax</b>	<b>L2.5</b>	<b>L8.33</b>	<b>L25</b>
70/60	65/55	60/50	55/45

Source: WAC 173-60

Notes:

<sup>(a)</sup> Environmental Designation for Noise Abatement

<sup>(b)</sup> The 10-dBA nighttime reduction for residential receiving properties applies between 10 p.m. and 7 a.m.

<sup>(c)</sup> These limits derived from the maximum daytime/nighttime permissible level (55/45 dBA) and the short-term increases above this level allowed during any hour of the day or night.

The WAC maximum permissible sound levels can be exceeded for certain periods of time: 5 dBA for no more than 15 minutes in any hour, 10 dBA for no more than 5 minutes of any hour, or 15 dBA for no more than 1.5 minutes of any hour. Sometimes these exceptions are described in terms of an interval "Ln," or the percentage of time a certain level is exceeded. For example, L25 represents a sound level that is exceeded 25 percent of the time, or 15 minutes in an hour.

Similarly,  $L_{8.33}$  and  $L_{2.5}$  are the sound levels that are exceeded 5 and 1.5 minutes in an hour, respectively. At no time can the allowable sound level be exceeded by more than 15 dBA, represented by an  $L_{max}$  noise limit.

The three percentile ( $L_n$ ) limits, together with the not-to-be-exceeded maximum level (the maximum permissible level plus 15 dBA), comprise the four daytime or nighttime hourly sound level limits shown in the lower half of Table A-2. To comply, hourly sound levels generated by non-exempt sources must be less than all four limits in every hour of the day. At Class A (residential) receivers, the noise limits are 10 dBA lower during nighttime hours.

Exemptions from the noise limits shown in Table A-2 are set forth in WAC 173-60-050. The following sources are among those exempt:

- sounds created by motor vehicles on public roads are exempt at all times, except as provided for in WAC 173-62, which sets noise performance standards for individual vehicles [WAC 173-60-050(4)(a)]
- sounds created by motor vehicles when operated off public highways, except when such sounds are received in Class A EDNAs [WAC 173-60-050(4)(l)]

The bottom portion of Table A-2 highlights the sound level limits for a residential source affecting a residential receiver. These are most the stringent sound level limits established by WAC and, as outlined above, are applicable to ORV noise.

#### *WAC 173.58*

WAC 173-58 identifies procedures for testing sounds created by off-highway recreational vehicles (in addition to other vehicles). The chapter does not establish sound level limits, but outlines the procedure for tailpipe sound level testing.

#### **Revised Code of Washington (RCW)**

##### *RCW 46.09.120*

RCW identifies the Washington State sound level limits for ORVs. RCW 46.09.120(1)(e) codifies a pass-by noise test sound level limit of 86 dBA, regardless of vehicle year or engine size. Washington has adopted the Society of Automotive Engineers (SAE) test procedure J331a, which outlines the procedure for conducting a pass-by noise test. This method is difficult to administer in the field because of terrain and acoustical variations in a typical outdoor environment. Consequently, the pass-by test is rarely performed.

As a result, RCW 46.09.120(1)(e) also establishes another standard: a maximum tailpipe limit of 105 dBA at a distance of 20 inches from the exhaust, using a test procedure similar to the method outlined in WAC 173-58. The RCW tailpipe noise testing procedure is considered the applicable rule for off-highway vehicles. The following two sections summarize the pass-by and tailpipe testing procedures included in RCW 46.09.120.

Pass-By Test. Many jurisdictions have established ORV sound level limits based on noise generated during a pass-by event, measured at a specified distance from the source for a specific duration of time. This test procedure is referred to in this document as the “pass-by” test procedure. The test requires the ORV to drive along a path at a specified speed and pass a point (typically) 50 feet perpendicular to the sound level meter. The sound level is documented by

qualified noise personnel and compared with the applicable sound level limit. To ensure an accurate test result, speed, acceleration, ground type, intervening terrain, and atmospheric and meteorological conditions must all fall within the criteria outlined in the test protocol.

Tailpipe Test. The tailpipe noise emission test measures noise from the exhaust of an ORV at a specific distance, angle, and engine speed. The measured sound level can be compared with the noise limit. Test protocols published by the SAE provide a standardized procedure, minimizing errors and disputes. SAE test procedure J1287 JUL98 has been adopted by some states, but not all. In some jurisdictions, specific tailpipe test procedures are not identified (only the sound level limit). In others jurisdictions, such as Washington State, the state code outlines the test procedure (which is very similar to the SAE test).

The tailpipe noise emission test procedure requires a Type I or Type II sound level meter placed at a 45 degree angle from the exhaust center line, perpendicular to this path (i.e., not facing the exhaust), 20 inches from the tailpipe opening. With the gear box of the ORV in neutral, the ORV is throttled to approximately half of the tachometer redline value. For ORVs not fitted with an engine speed tachometer, a vibrating reed tachometer (placed on the engine itself) can be used. The Motorcycle Industry Council, Inc. (MIC) Stationary Sound Test Manual clearly outlines the test procedure. In addition, the MIC manual provides a basic description of noise, sound level meters, and an updated list of manufactured ORVs (dirt bikes and ATVs) and the actual rpm value that each vehicle should be tested at (otherwise the half-redline procedure is used).

### **Washington Department of Natural Resources**

The Washington State Department of Natural Resources currently controls ORV use on a case-by-case basis under its land management plan for specific areas. The state administrative rules governing recreation and access of state-controlled public land use areas are codified in WAC 332-52, originally written in the 1970s. The DNR acknowledges that these rules do not reflect current issues, including the increased use of ORVs, and has recently proposed amending the rules. Although the proposed changes to the WAC are not yet available, ORV use and recreation are expected to be addressed in a Draft EIS to be published in late 2006.<sup>5</sup> ORVs operated on DNR land are subject to the sound level limits established in the WAC, although enforcement of these rules is probably rare.

### **Local (County and City) Laws and Regulations**

The existing WAC noise rules may be adopted in whole or in part by counties, cities, and towns in Washington State (typically either by reference or by default). In some cases the WAC rules have been superseded by specific rules at least as stringent as the state rule. Consequently, throughout most of Washington, the noise limits established by WAC 173-60 are applicable to all non-exempt sources of noise crossing a property boundary line. Although it may be rare for ORV noise to be considered under these limits, ORV noise received on the property of others is subject to the WAC limits.

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<sup>5</sup> *Response to Scoping Comments, Proposed Revisions to Recreation WAC 332-52*, Doug Sutherland, Commissioner of Public Lands, Washington State Department of Natural Resources, 2005  
<http://www.dnr.wa.gov/htdocs/amp/sepa/recreation/recreationwac.htm>

Following is a discussion of county, city, and town noise rules that specifically address ORV noise issues. This is not a complete list of Washington State noise rules, but rather a review of examples where ORV-specific language has been adopted.

**Washington State Counties**

Several Washington State counties have adopted ORV noise rules based on either WAC 173-60 or RCW 49.09.120. Several counties employ deputy sheriffs to enforce ORV-related rules, including those that address noise.

Thurston County recently revised its county code to include language specifically addressing ORV noise. Section 10.36.030 of the Thurston County code says in part:

It is unlawful for any person to willfully cause, or any person in possession of property willfully to allow to originate from the property, any sound which is caused by the operation of a motorized vehicle upon property, other than a public highway, that exceeds fifty-five dBA between the hours of seven a.m. and ten p.m. and forty-five dBA between the hours of ten p.m. and seven a.m., measured at any adjacent parcel or public right-of-way. . . .”

This language identifies 55 dBA as the not-to-be-exceeded sound level at a neighboring property line, regardless of EDNA Class (i.e., zoning or land use) of the source or the receiving property. This limit is more restrictive than the WAC noise limits, which allow short-term increases in noise levels. In addition, the maximum permissible sound level limits in WAC 173-60 vary between residential, commercial, and industrial sources and receiving properties.

Table A-3 summarizes some of the counties in Washington state that have specifically adopted ORV noise rules.

**Table A-3. Example of ORV Noise Rules at the County Level in Washington**

County	ORV Noise Limit	ORV Deputy? <sup>6</sup>
Chelan	105 dBA, tailpipe	2
Grant	No	2
Grays Harbor	105 dBA, tailpipe	No
Kittitas	105 dBA, tailpipe	No
Thurston	55 dBA, property line	No
Yakima	105 dBA, tailpipe	2

Source: Geomatrix Consultants, Inc. 2006

The third column in Table A-3 identifies counties that employ one or more deputy sheriffs whose tasks include, among other duties, enforcement of ORV noise limits established by the county.

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<sup>6</sup> As defined here, an ORV deputy is funded by the Interagency Committee for Outdoor Recreation with Nonhighway and Off-Road Vehicle Activities (NOVA) Program funds. Other personnel with education-enforcement duties, not shown in the table, may also be available in these counties. They include Dept. of Natural Resources’ investigators (commissioned officers), wardens, and hosts, as well as seasonal Forest Service Forest Protective Officers.

### **Washington Cities and Towns**

Some Washington cities and towns have noise rules pertaining to ORV use. In many cases, these rules are adopted from and identical to the state noise code (WAC 173-60). However, in some cases these rules may be more or less restrictive. For example, the City of Spokane Valley has adopted a rule that prohibits repetitive and continuous off-highway vehicle use within a residential area if that use results in a nuisance at neighboring properties. Chapter 7.05.040 says:

No person, firm, or entity shall erect, contrive, cause, continue, maintain, or permit to exist any public nuisances within the City. Prohibited nuisances include, but are not limited to:

(O) The creation of frequent, repetitive or continuous sounds in connection with the starting, operation, repair, rebuilding or testing of any motor vehicle, motorcycle, **off-highway vehicle** or internal combustion engine within a residential zone, so as to unreasonably disturb or interfere with the peace and comfort of owners or possessors of real property. [*Emphasis added.*]

Many other local jurisdictions have adopted noise nuisance language. While ORV use may not be specifically referred to in most cases, operation of an ORV that results in a noise nuisance would typically be subject to the nuisance laws adopted by that jurisdiction.

In addition to the above noise rule, the City of Spokane Valley has recently published a noise ordinance (May 2006) which effectively prohibits the use of ORVs in residential areas. The new ordinance (SVMC 06-012), which will be become effective in January of 2007, does not include vehicles designed for yard or garden work. Enforcement of this rule will be driven by complaints only.

### **Other US State Tailpipe Noise Limits**

#### **Tailpipe Sound Level Limits**

The Washington State ORV tailpipe noise limit is the least restrictive such rule in the United States. The tailpipe noise limit in Washington is 105 dBA when measured using the procedure outlined in RCW 46.09.120. Most other states have adopted an ORV tailpipe noise limit of 96 dBA. Table A-4 summarizes the tailpipe noise limits for all US states that have an established tailpipe limit. Some US states have not established sound level limits for ORV tailpipe *or* pass-by noise, in which case, noise from ORV use may be subject to other state sound level limits (i.e., rules established in a state's Administrative Code).

**Table A-4. ORV Tailpipe Noise Limits in States (USA)**

<b>State</b>	<b>Noise Rule(s)</b>	<b>Governing Authority</b>	<b>Other Notes from Web or Telecommunications</b>
California	<b>96 dBA for ORV manufactured after 1985</b>	State Parks	Also applies to competition motorcycles manufactured after 1997
Idaho	<b>96 dBA</b>	Parks and Recreation	From American Motorcycle Association (AMA) Database
Maine	<b>96 dBA for all ATVs</b>	Inland Fisheries and Wildlife	State All-terrain Vehicles 2006 Laws and Regulations (ATV includes quads and motorcycles)
Massachusetts	<b>103 dBA</b>		From AMA Database
Michigan	<b>94 dBA</b> (82 dBA for ORV motorcycles 1986 and newer) <b>99 dBA</b> if older than 1986 Exception: competition bikes	DNR	Manual put out by DNR: "Handbook of Michigan Off-Road Vehicle Law"
Minnesota	<b>96 dBA for OHVs 1986 and newer</b> <b>99 dBA for OHVs before 1986</b>	DNR	ATVs, OHMs (motorcycles), and ORVs (vehicles like 4-wheel trucks and dune buggies) are separate Manual put out by Minnesota 4-Wheel Drive Association, with DNR
New Hampshire	<b>96 dBA</b>	Fish and Game	Summons never issued. Complaint driven, rarely enforced
New Mexico	<b>96 dBA</b>	NM BLM	AMA Database, New Mexico Bureau of Land Management website
Ohio	<b>96 dBA if manufactured after 1/1/06</b>	Bureau of Motor Vehicles	AMA Database, Ohio BMV website
Oregon	<b>99 dBA</b>	DNR	<b>93 dBA</b> at Oregon Dunes
Pennsylvania	<b>96 dBA; 99 dBA for ATVs</b>	DNR	From AMA Database
Washington	<b>105 dBA</b>	Local or state law enforcement	Highest tailpipe sound level limit in USA
Wisconsin	<b>96 dBA for ATVs</b>	DNR	From AMA Database

**Source:** Geomatrix Consultants, Inc., 2006 and others

Notes: double-lined box denotes tailpipe sound level limits at 96 dBA, the level proposed in the model ordinance recommendations included as part of this report.

Nine of the thirteen states listed in Table A-4 have adopted a 96 dBA sound level limit for the tailpipe test. Three have adopted higher limits, including Washington State (105 dBA, the highest tailpipe limit in the US), and one, Michigan, has adopted a more stringent limit (94 dBA). States with terrain and recreational demands similar to Washington, including California, Oregon, and Idaho, have sound level limits lower than 105 dBA. The tailpipe limit in California and Idaho is 96 dBA, and the limit is 99 dBA in Oregon (which drops to 93 dBA when operating at the Oregon Dunes).

### **ORV Literature**

Several states have published literature regarding proper and safe ORV use. Some of these publications include specific language pertaining to the state's sound level limits, either as a pass-by limit or as a tailpipe test limit. Below are brief descriptions of three handbooks or brochures currently available.

#### *Minnesota*

The Minnesota Department of Natural Resources has published a summary of the rules and regulations that apply to ORVs operating in Minnesota. Included in this publication (which is available on-line) are ORV definitions, registration rules, rules about operating ORVs on state land, enforcement, trespassing, safety, and others. The publication also includes specific tailpipe sound level limits (listed in Table A-4), with clear language as to the specific vehicles that are subject to the limits. Funding for the publication comes in part through advertisements.

#### *Michigan*

The Handbook of Michigan Off-Road Vehicle Laws is published by the Michigan Department of Natural Resources. The handbook is available on-line in a user-friendly format with drop-down menu options for quick reference. A wide range of ORV information is available, including ORV safety, riding tips, trail etiquette, noise limits, and many other topics.

#### *Oregon*

Oregon State Parks has published OHV Oregon Laws and Rules, available as a brochure and online. The brochure is colorful and easy to follow. It outlines, among other items, definitions, applicable laws and penalties, areas to ride, information about safe and environmentally sensitive riding, and the applicable tailpipe sound level limits. The noise limits are divided by ORV class (defined in the brochure).

#### *California Rules*

In California, ORVs are subject to registration through the Department of Motor Vehicles. Non-resident ORV use permits are required for out of state visitors using California public lands. California Vehicle Code Noise Limits (Section 38370), effective in 2003, require off-highway motor vehicles to be equipped with a device that limits noise emissions to 96 dBA if manufactured on or after January 1, 1996, or not more than 101 dBA if manufactured before January 1, 1996, as measured by test procedures under the Society of Automotive Engineers using Standard J1287. The Off-Highway Motor Vehicle Recreation Division (OHMVRD) is charged with, but is not the only agency responsible for, the enforcement of the permit system for public land uses at designated recreation areas and trails (State Vehicular Recreation Areas, or SVRAs). The OHMVRD conducts multi-agency workshops to teach other agency enforcement personnel how to interpret the requirements of the noise rules, thus providing

consistent statewide enforcement. The enforcement provisions include conducting sound tests on ORVs on public lands. In September 2005, the OHMVRD released its report evaluating the effectiveness of the current ORV noise rule. The study reported that large percentages of interested parties aware of the California's ORV Noise Standard (manufacturers, environmental groups, riders, etc. interviewed for the study) believed the standard is effective. The study also reported that the SAE J1287 sound level measurement procedure is well suited for regulatory enforcement purposes.<sup>7</sup>

In addition to state agency noise rules and enforcement, local communities also codify and enforce noise limits. Often, local ordinances are based on nuisance noise provisions. But recently, more local and county agencies are enacting rules specific to ORV noise because ORV use is so prevalent and conflicts have arisen between residences and ORV users. For example, San Bernardino County passed regulations in 2006 concerning off-highway motor vehicle use in areas not under the control of other local, state, or federal government entities for off-highway use. It limits ORV use on private property by restricting ORV noise emission limits to those required on state public lands, requires written permission from the property owner, and if 10 or more persons with permission "stage" on a property, requires a Temporary Special Event permit to be obtained from the County prior to the gathering.

### **Enforcement of Tailpipe Noise Limits**

To gain a better understanding of how the tailpipe noise limits are enforced in the United States, the consultant team contacted enforcement personnel in three of the states identified in Table A-4. The enforcement personnel contacted were specifically charged with addressing ORV issues, including noise. There was general agreement that there are several problems facing enforcement of ORV noise laws. Outside of California, it was discovered that most state agencies do not actively enforce ORV noise laws. Several explanations were given for this fact:

- Noise equipment (sound level meters) not provided
- Noise equipment provided, but too complicated to operate
- Noise rules too vague, no clear understanding
- Difficult to defend sound level measurements if they are contested in court
- More important issues to address than noise (e.g., ORV rescue, etc.)
- Noise impacts are more effective when addressed by good neighbor relations and dialogue.

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<sup>7</sup> *California Off-Highway Vehicle Noise Study, A Report to the California Legislature As Required by Public Resource Code Section 5090.32(o)*. Prepared by Stephen A. Martin, Anthony Leung, and Patrick Pallini, Wyle Laboratories, Inc. September 2005.



## **Appendix B – Interview Questions and Results**

## Appendix B – Interview Questions and Results



### Technical Memorandum

DATE: October 3, 2006

TO: Mark Johnson, Project Manager, ESA Adolfson

SUBJECT: ORV Noise Solutions Advisory Committee - Interview Summary

FROM: Jackie Dingfelder, ESA Adolfson

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#### Introduction

Jackie Dingfelder, Senior Planner at ESA Adolfson, and Kevin Warner, Project Environmental Scientist at Geomatrix Consultants, interviewed ORV Noise Solutions Advisory Committee members and key stakeholders to solicit their input and recommendations for development of a statewide ORV noise reduction program. ESA Adolfson worked closely with the Washington State Interagency Committee for Outdoor Recreation (IAC) staff to develop interview questions. A total of 10 people were interviewed (see page B-35) for a list of survey participants) and interviews ranged from 30-45 minutes. This memo summarizes key points and recommendations raised during the interviews. Responses to each question are summarized below.

#### Interview Questions:

**1. How did you come to be involved with the Advisory Committee?**

Several of the people interviewed became involved with the committee because they were directly affected by ORV noise. Some were affiliated with a group called Coalition against ORV Nuisances (CORVN). Several others were ORV riders or industry representatives and were asked to provide input during the legislative session. Several participants had experience working with ORV noise issues in other states.

**2. Do you or your family members use ORVs now?**

6 out of the 10 people interviewed responded yes.

**A. If yes, how often**

- (i) 1-6 times year - 1

- (ii) 7-12 times a year - 2
- (iii) More than 12 times per year - 3

**3. Do you believe there is an issue now with ORV noise sometimes affecting neighboring residential and non-residential properties?**

All of the survey participants answered yes to this question.

**A. If yes, what are the issues that are most problematic?**

- Excessive noise levels.
- Decrease in property values.
- Land use conflicts arise at the rural/urban interface –encroachment of urban areas into rural landscapes.
- Exhaust especially while idling.
- Attitude, people think it's a property right issue- one side thinks there is an assumed right to use ORVs and the other thinks there is a right to peace and quiet.
- Variable frequency, unknown duration, disruption of private time.
- Lack of buffers.
- ORV use on private lands affecting neighboring residential areas.
- Lack of enforcement personnel and funds.
- ORV noise issues related to population density- as development density increases there are more perceived problems with ORV noise.

**B. If yes, should these issues be the focus of this study?**

- Majority of respondents said that addressing noise issues should be the major focus of the study.
- Study should focus on operation of vehicles on public/private land within incorporated areas because ORV noise is less of an issue in unincorporated areas.
- Education and enforcement.

**4. Are you aware of any examples of methods for effectively addressing ORV noise?**

5. Most respondents answered yes to this question. Answers provided were a mix of examples of actual methods and suggestions for new methods.

***If yes, please explain:***

- Installation of after market mufflers.
- Education programs and public service announcements targeting ORV users.
- Adopt stricter noise limits.
- Adopt buffers (e.g. City of Yucaipa, CA adopted 600 foot buffers).
- Annoyance ordinance (not based on db levels, e.g. City of Shelton).
- Ban use of ORVs (e.g. Spokane Valley) in residential areas.
- Provide alternative places for ORVs to ride.
- Use noise meters to enforce regulations.
- Ensure proper noise control equipment is installed at point of sale (at dealer).

- Increase penalties for ORV riders that alter machine after purchase.
- Neighborhood watch method – train citizens to use noise meters to monitor noise levels.

**6. Which of the following characteristics of ORV noise do we need to look at controlling?**

- A. Loudness (e.g., the amount of noise allowed): 10
- B. Duration of the noise (e.g., to allow temporary but not continuous use): 4
- C. Times of day: 3
- D. Days of week: 2

**7. Are there any other aspects of ORV noise or use that you think should be considered for regulation? (If yes, please explain.)**

- Modification of mufflers after purchase shouldn't be allowed.
- ORVs shouldn't be allowed in residential area.
- Fumes, dust and exhaust.
- Improper use of competition bikes.
- Limits of hours of daytime use.

**8. Do you think the existing laws pertaining to ORV noise are being adequately enforced?**

All but one participant answered “no” to this question. The person who responded “yes” said that the laws were being enforced in his county once the issue was brought to the attention of the law enforcement agency.

*If no*, what obstacles do you see to adequate enforcement of current regulations?

- Lack of resources to properly enforce the law.
- Current noise rule is difficult to enforce.
- Lack of education for ORV users especially from dealers.
- Lack of responsiveness by law enforcement officers (culturally biased towards ORV users).
- Need more citizen involvement (adopt a citizen watch approach).
- Lack of dedicated noise enforcement personnel.
- Lack of adequate funding to purchase noise meters.
- Lack of adequate training to use noise meters if they are available.
- Lack of coordination by decision makers on this issue.
- Fear of retribution by neighbors.

**9. Should noise from ORVs be regulated the same way as noise from other "non-temporary" residential noise sources like mechanical systems (air conditioning, ventilation, etc.), stereos, and the like?**

Responses to this question were varied, however, most responded no.

- No, it's complex and needs to be addressed differently from other noise sources.
- No, because ORVs are temporary and recreation based.
- No, because ORVs should already meet EPA noise emission requirements.
- Possibly for a racetrack where noise occurs on a regular basis.
- Yes, noise is noise regardless of the source.
- Possibly and consider training the County code officer to enforce regulations

**10. Should ORV owners be required to demonstrate the vehicle noise-control system is working properly in order to get a permit to operate off-road on private property? Why or why not?**

Only two participants responded yes to this question. The majority said no for the following reasons:

- Would be difficult to enforce; can alter after the inspection.
- Would create unnecessary bureaucracy.
- Concerned about the cost of implementing such a program.
- Not necessary for new bikes.
- Don't think it would work well for private landowners but might work for private ORV tracks.

**11. If a person goes to court seeking to stop an ORV noise nuisance, should that person, if successful, be able to recover their court costs, legal fees, and actual damages associated with such a legal action?**

Almost all of the participants responded yes to this question.

**Besides recovering court costs, where else should the legislature look for revenue to cover the cost of enforcement? Explain.**

- Set aside more funding for enforcement from the current sources (gas tax, permits)
- Reimbursement from the Federal Government for enforcement activities on Federal Lands.
- Require payment from ORV users for sound testing.
- Funding is adequate; just need to enforce existing laws.
- Higher ORV permit fees; most would not mind paying more for real education and enforcement, as in the snowmobile industry.
- Testing done by volunteers to reduce costs.
- Funds from enforcement of laws (tickets) to pay for further enforcement.

**12. That concludes the interview. Do you have any additional thoughts or comments you'd like to add?**

- Increased education of ORV users is essential.
- Educating dealers and muffler manufacturers is important.
- Need to adopt an ORV noise program that can be easily enforced and is cost effective.
- Prefer a citizen watch approach.
- Prefer buffer restrictions to noise limit. Easier to enforce.
- Need to enforce the law to set an example for those out of compliance.
- There's a perception that ORV users are not respectful of private property.
- Seems to be a lack of tolerance of ORV noise by a few people that raise the issue.

## ORV Survey Interview List

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**Richard Krause**, Lewis County  
(Citizen dealing with ORV noise issue)

**Ben Turner**, Lewis County  
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Asterisk (\*) denotes IAC's original ORV Noise Solutions Advisory Committee member. On November 2, 2006, Dave Bowers resigned due to a previous commitment and was unable to review and comment on the draft report. Though not interviewed, two volunteers were appointed to replace him and comment on the draft: Rod Jones (Northwest Motorcycle Association), and Ed Bushnell (American Motorcyclist Assn., Catywampus Caveman Motorcycle Club, Northwest Outdoor Coalition, Straddline Grays Harbor County ORV Sports Park, Wa. Off-Highway Vehicle Alliance).



## **Appendix C – Web-based Survey Questions and Results**

## Appendix C – Web-based Survey Questions and Results

Prepared by ESA Adolfson, November 2006

To solicit public input from interested parties not available to attend the workshops described on page 5, this web-based survey was posted on the Internet from October 18th through November 6th, 2006. Survey participants were self selected and non-random, thus this is not a representative scientific poll in which the number of respondents in favor of a particular view is significant. (Response totals are available from IAC.) Rather, it is designed as a way to explore the range of attitudes and obtain input from a wide variety of interest groups.

Information on how to access and complete the questionnaire was posted on IAC's website and emailed to 79 people who had expressed an interest in this study. Recipients were encouraged to distribute the information to other interested people. Over 2,100 responses were received within that time period. Some of these respondents were likely from outside Washington State, as no limit was placed on where a respondent lives (Internet links to the questionnaire were found on national bulletin boards).

- 1. Should the current ORV sound limit be reduced? The existing noise limit (105 dBA @ 20 inches from the tailpipe) is higher than all other states; should it be lowered to a level similar to other states (96 dBA)?** [*Respondents were asked to select "Yes," "No," or "Other."*]

Responses range from keeping the standard the way it is to imposing limits as low as 60 dBA. The lower end of these may reflect confusion over the tailpipe versus the property line standards. Many favor reducing the standards but in stages rather than all at once. Suggestions for separate, less stringent standards or exemptions for older vehicles, air-cooled engines, vehicles operated on private property, in remote areas, in established ORV parks, or at sanctioned events. Several established sources were referenced, including American Motorcyclist Association and Northwest Motorcycle Association standards for sanctioned events. However, the cited standards were not consistent, possibly reflecting ongoing confusion about what standards apply.

- 2. Whether or not the tail-pipe noise limit is reduced, how should Washington's ORV noise limit be enforced?** [*Respondents were asked to select from the following:*

- *Encourage self regulation via a stepped-up education program*
- *Ensure all products meet current noise laws at the point of original sale*
- *Ensure all products meet current noise laws at the point of (prior to) resale*
- *Require an annual certification, for example, at retail or repair outlets, trailheads, tracks, etc.*
- *Other]*

Responses range from those that felt that no enforcement is needed to those that said all of the above. Other suggestions include: teaching tolerance of ORV noise; self-regulation; testing available at dealerships; testing at events; complaint-basis checks only; semi-annual, annual, or biennial certification; signage at trailheads; random checks at trails; citizen enforcement; warnings with educational materials; graduated or heavy fines or confiscation for non-compliance after a grace period, or allow community service working trails to pay off fines; allow any "US Forest legal" pipes; establish separate standards for 2-stroke and 4-stroke; get after-market manufacturers on board the way vehicle manufacturers have.

**3. Should the state address (for example, restrict or prohibit) the sale of after-market products that cause or allow ORVs to exceed noise limits? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Suggestions range from doing nothing to outlawing all such devices and imposing fines for any such device found on a vehicle. Those concerned that such a law should not be adopted cite the availability of such products on the internet, the impacts on local businesses; the need for louder "mufflers" for closed course racing; the high cost of such enforcement; the preference to let the market decide; and the desire not to have these devices regulated at all. Those arguing for this standard commented that it would help people to comply with other noise regulations. One suggestion was to require a racing license to purchase a device that does not comply with the tailpipe limit. Others commented that most tracks already have lower limits and thus they do not allow the loud vehicles on the tracks.

**4. Should we consider time-of-day restrictions at the state or local levels? In some jurisdictions, existing limits are 10-dBA lower during nighttime hours (10 p.m. to 7 a.m.), which may not adequately protect sensitive uses in the early morning and evening. Should more restrictive hours be applied? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Responses range from no additional restrictions to a variety of different hours that should be restricted. Some said all such decisions should be local, while others said that the rules need to be uniform or it becomes too confusing to know where you can ride legally. Some commenters suggested that more restrictive standards would be appropriate but only on public lands, in residential areas, or in quiet rural areas. Several point out that few off-road bikes have lights, thus restricting night use, and that few users like to ride at night. Respondents also mentioned events that end after 10 PM, occasions when a rider finds themselves caught unexpectedly by darkness, and anticipated crowding in approved riding areas due to restricted hours as reasons not to restrict riding hours. Several suggested that ORV noise should not be singled out for greater restrictions at night than other noise generators.

**5. Should we consider day-of-week restrictions at the state or local level? Some noisy activities (for example, construction) are prohibited in some jurisdictions on some days of the week (for example, Sundays and holidays). Should similar restrictions be considered for ORV sounds? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Many responses point out that weekends and holidays are peak use days and that prohibitions on these days would be especially onerous to ORV users. Reasons also included the likelihood of further overcrowding in approved riding areas as mentioned for the time-of-day restrictions. The few comments that supported day-of-week restrictions limited their support to higher density residential areas.

**6. Current rules, when enforced, are mostly applied only in response to complaints. Should there be a more active noise compliance education and/or enforcement program at the local level? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Answers ranged widely on whether education or enforcement activities are more effective. Some thought that education and self-regulation were the best tools while others shared that increased enforcement is the only thing that will help reduce noise problems. Several favored involving

local clubs in education and enforcement activities and some suggested developing a neighborhood watch program.

**7. Instead of leaving ENFORCEMENT to the local police or sheriff, should there be specific noise ENFORCEMENT personnel? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Some responses said yes, there should be certified noise enforcement personnel while others stated no, existing personnel is adequate. For those who supported specific noise enforcement personnel, they emphasized the need for proper equipment and training. Other ideas include involving local ORV clubs in implementing self-enforcement actions. Some suggested limiting such a program to high use areas or events. Funding recommendations included requiring the ORV community to pay extra for a special enforcement officers to using existing IAC Education and Enforcement NOVA funds to supplement local law enforcement budgets. Other ideas included involving local ORV clubs in implementing self-enforcement actions.

**8. Should there be specific noise EDUCATION personnel at the local level? [Respondents were asked to select “Yes,” “No,” or “Other.”]**

Responses varied from yes, as long as it doesn't cost additional money to no, it's a waste of NOVA funds and will just create more bureaucracy. Several comments suggested focusing on education first before employing enforcement techniques. Some suggested that local clubs should take a lead role in educating riders about noise limits. A respondent suggested looking at the Oregon Dunes State Recreational Area as an example: The State distributes educational materials to ORV riders and they offer a free decibel level test to interested riders.

**9. Do you support any of the following noise prevention options? [Respondents were asked to select from the following:**

- **Minimum distance buffer requirement (for example, require ORV track to be "X" feet from property line).**
- **Prohibit ORV use near certain land uses (for example, residential areas).**
- **Create additional ORV riding opportunities in designated areas with compatible land uses.]**

Though there was some support for each option, a consensus was not established.

**10. Do you have any other suggestions or ideas for solutions to the ORV issue?**

Responses to this question largely reiterated responses seen in other sections of the survey. Many expressed that the solution should include more ORV use areas. Many expressed concern that the loss of ORV areas and encroachment of new development on existing areas is part of the cause, and suggested that one solution is greater tolerance of ORV noise in established areas. Several said that the majority of riders should not be restricted because of the actions of a few. One apparent ORV user suggested that violations of an ORV noise regulations as well as lack of ORV tags should result in impoundment and a fine. Many expressed a desire that ORV funds be used only for creating ORV areas rather than creating new restrictions. A number of responses supported banning ORV use in residential areas, or establishing buffers based on testing actual conditions (such as in forested versus open areas). Several said ORVs are not as loud as some motorcycles and cars that are allowed to operate on streets and highways, and thus that further regulating ORVs was unfair. Others said that the focus on ORV noise was motivated by an effort to ban the ORV use.

## **Appendix D – Recommended Noise Ordinance Components**

## Appendix D – Recommended Noise Ordinance Components

This Appendix includes additional technical information about the recommended model ordinance components and a comparison table showing the components that could be included in two model ordinance alternatives.

### **Sound Level Measurement Standards**

We recommend including new definitions in the model noise ordinance to require two new sound level measures for assessing compliance. Both metrics are typically used in assessing compliance with the noise limits applied by a variety of federal and international agencies. These metrics, called “equivalent sound level” ( $L_{eq}$ ) and “maximum sound level” ( $L_{max}$ ), can be measured directly using modern integrating sound level meters, and thus do not require subsequent data processing to determine compliance or violation of a noise limit. These are described in further detail in below.

**Equivalent sound level.** The equivalent sound level, abbreviated as “ $L_{eq}$ ,” is the energy average sound level of noise measured over a certain period (for example, 1 hour). As such,  $L_{eq}$  is the level of a constant sound with the same sound energy as the fluctuating sound that occurred over the measurement interval. The  $L_{eq}$  therefore provides a single numeric value representing the entire variability of sound during a measurement. In addition to being directly measurable using an integrating sound level meter, the  $L_{eq}$  is a highly desirable metric for use in such assessments because it is a fundamental metric used in federal and state noise regulations and represents a good indicator of potential community response to noise.

**Maximum sound level.** Abbreviated as “ $L_{max}$ ,” the maximum sound level measured during a specified time, and can be measured as a "Slow" or a "Fast" meter setting. The Slow  $L_{max}$  is the highest 1-second sound level; the Fast  $L_{max}$  is the highest 1/8-second sound level. The  $L_{max}$  metric is comparable with the not-to-be-exceeded maximum allowable level. Measurements to collect compliance data should be conducted using the Fast measurement mode only. The previously used and specified Slow response mode is antiquated, no longer necessary for taking definitive readings, brings nothing useful to the discussion, and may even obscure some of the highest levels that occur during a measurement.

### **Specific Environmental Noise Limits**

The specific noise limits and recommended variance and rounding conventions that pertain to measured noise levels received in Class A EDNAs (Environmental Designation for Noise Abatement) are listed in Table D-1 (WAC 173-60).

**Table D-1. Current Environmental Noise Limits for Class A EDNA Receivers (dBA)**

Sound Source EDNA	Leq Limit Day/Night	Lmax Limit Day/Night
Class A (residential)	55/45	70/60
Class B (commercial)	57/47	72/62
Class C (industrial)	60/50	75/65

**Notes:**

An  $L_{eq}$  limit must be exceeded by at least 2 dBA to constitute a violation of a limit. In assessing compliance, measured levels are to be rounded to the nearest whole decibel, so in practice, a measured level of 56.5 would round to 57 dBA and constitute a

violation of the Leq limit for noise received from a Class A EDNA. Similarly, an Lmax reading of 2 dBA or more above a limit would comprise a violation.

**Comparison of More Stringent and Less Restrictive Model Ordinances**

The suggested components of a model noise ordinance to control environmental noise levels are presented in Table D-2.

**Table D-2. Recommended Environmental Noise Limits Model Ordinance Components**

Model Ordinance Component	Most Stringent Option	Less Restrictive Option
<p><b>Purpose:</b> To allow any local jurisdiction to develop rules and programs to control levels of environmental noise related to ORV operation received at residential use locations on the property of others</p>		
<p>Adopts all definitions, components, and exemptions of WAC 173-60 with modifications below</p>		
<p><b>Added definitions:</b>  <b>Leq</b> means the equivalent sound level, which is the constant sound level in a given time period that conveys the same sound energy as the actual time-varying A-weighted sound. The applicable time period for the Leq must be specified. Leq is defined in ANSI S1.1-1994.  <b>Lmax</b> means the maximum sound level over a measurement interval as determined using a sound level meter set to "Fast" response time. Both Lmax and "Fast" mode are defined in ANSI S1.1-1994.  <b>Compliance based on Leq and Lmax</b> - the determination of compliance or violation of the noise limits in this rule are based on both the Leq and Lmax noise metrics as defined above. A violation based on the measured Leq and/or Lmax must be at least 2 dBA higher than the specified limits.  <b>Class A EDNA</b> - Include all portions or parcels of properties whose primary use is residential (as in present rule), and expand definition to include all residential buildings and a surrounding area within a 100' radius of those buildings or to the property boundary (if nearer than 100') on property that would not ordinarily include a residential designation (e.g., a home on an agricultural property)</p>		
<p>Sound level measurements must be taken by qualified (i.e., trained) personnel using calibrated (i.e., annually certified) equipment as specified in WAC 173-58 <i>et seq.</i></p>		
<p>Define noise limits based on WAC maximum permissible levels but based on 15-minute Leq and interval Lmax without consideration of other interval Lns as required by current rule. The Leq and/or the Lmax limits must be exceeded by 2 dBA or more to represent a violation of a limit.</p>		
<p><b>Time of Day Restrictions</b> (Optional additional control measures to provide added noise reductions related specifically to ORV use during somewhat sensitive periods of the day)</p>	<p>a) Set evening hours with incrementally lower limits (i.e., lower limits of 5 dBA between the hours of 7 and 10 p.m. for all sources or just for ORV noise), OR                      b) Prohibit ORV noise during certain periods of daytime hours (e.g., before 9 a.m. and after 7 p.m.), OR                      c) Prohibit ORV use between 10 p.m. and 7 a.m.</p>	<p>No additional time of day restrictions (but still subject to day/night limits as defined in WAC 173-60)</p>
<p><b>Sound level measurement interval</b> required to assess compliance</p>	<p>15 minutes</p>	<p>5 minutes for first response (with warning) and 15-minutes for all subsequent sound level measurements</p>
<p><b>Primary enforcement mechanism</b></p>	<p>Response to complaints and/or at discretion of officer</p>	<p>Response to complaints only</p>
<p><b>Sound level measurement data report</b> to document compliance or infraction</p>	<p>Same for both - based on form to be developed (rough example to be included)</p>	

Model Ordinance Component	Most Stringent Option	Less Restrictive Option
Describe sound level measurement equipment used, list audible noise sources, provide subjective judgment of the relative contribution of the ORV sound source, include drawing of source/receptor relationship, present measured sound levels		
Copy of report form to be provided to complainant as well as filed for use in subsequent proceedings		
<b>Penalties</b>	First offense = warning Graduating fines for subsequent offenses	First offense = warning Subsequent offenses subject to set fine
<b>Citizen-sponsored compliance assessment provision if local enforcement agency is not responsive to complaints</b>		
What is non-responsive	No action after two written complaints	No action after four written complaints
Sound level measurement to be taken by qualified personnel using certified Type I or Type II as defined in ANSI S1.4-1983	Same for both	
Submittal process	Submit to local enforcement agency; agency required to investigate to confirm or refute problem within 14 days (weather permitting)	Submit to local jurisdiction, city, or county legal department; agency required to investigate to confirm or refute problem within 30 days (weather permitting)
Types of responses	Notice of violation (NOV) with fine indicated (like speeding ticket)	Choice of NOV or notice to appear
Recovery of costs of citizen enforcement including initial sound level measurements and any subsequent legal expenses	Full cost recovery from party responsible for controlling the noise (responsible party)	Partial cost recovery (e.g., 50% from responsible party and 50% from local jurisdiction, OR at least 50% from responsible party)

## Frequently Asked Questions About the Proposed Noise Ordinance

### 1. What does the proposed change in noise metrics mean?

Unlike the current system of noise limits based on "maximum permissible levels" and allowed short-term increases, using the proposed noise limits based on a combination of the  $L_{eq}$  and the  $L_{max}$  would provide directly measurable metrics that would not require additional data analysis to determine compliance. So using the  $L_{eq}$  as the basis of the limits would greatly simplify the process of assessing compliance.

### 2. How does $L_{eq}$ differ from current method?

The  $L_{eq}$  can be considered a sound energy average. But unlike an arithmetic average, the  $L_{eq}$  considers all the sound energy as well as the duration of sounds that occurs during the measurement interval, and so gives the most weight to the loudest and/or the longest lasting levels because they contain the most energy. The  $L_{eq}$  is therefore a single sound level that represents the energy average level of the fluctuating sound levels that occurred during the measurement interval. As indicated above, the  $L_{eq}$  can be measured directly, while assessment of

compliance based on the current system is much more complex and requires post-measurement data analysis.

*3. Is using the  $L_{eq}$  more or less restrictive? For example, what would 75 decibels sound like with the new method? Would it sound louder or quieter? What about 55 dBA?*

Using noise limits as proposed based on the combination of the  $L_{eq}$  and the  $L_{max}$  would be approximately equivalent to the current noise limits, but would be much easier to measure. The current limits are set by a base limit (the maximum permissible level) and allowed short-term increases over this level. This effectively sets four noise limits based on durations of sounds during the measurement interval. The not-to-be-exceeded maximum level in both the current system and in the proposed new system is the maximum permissible level + 15 dBA.

The noise metric used to measure the sound does not affect in any way how the sound would be perceived. The  $L_{eq}$  is a construct B the level of a constant sound with the same sound energy as the actual fluctuating sounds during the same interval. There are many possible combinations of varying sound levels that equate to the same  $L_{eq}$ , which allows for short-term variations above a given limit. But the use of a not-to-be-exceeded maximum level ensures that levels will never (legally) exceed the limit by more than 15 dBA. And if levels are close to 15 dBA above the limit for too long during a measurement interval, the  $L_{eq}$  limit would be exceeded.

*4. A 15-minute  $L_{eq}$  is recommended. What does this mean? How does this determine whether there is a violation? Is it a one time reading or continuous for 15 minutes?*

This means at least a continuous 15-minute measurement will be required to assess compliance based on the measurement  $L_{eq}$ . If the measurement  $L_{eq}$  is 2 dBA or more higher than the limit, or if the  $L_{max}$  limit is at any time exceeded by 2 dBA or more, either instance would constitute a violation of the limit.

*5. Why is an additional 2 dBA needed to determine a violation?*

The proposed additional 2 dBA over the limit is necessary (a) to allow for some variation in the measurement equipment (as defined in state rules) and (b) to ensure that the proposed limits are essentially the same as the existing limits. Regarding the second point, the existing system in the WAC is based on a maximum permissible level but allows short-term increases over this "limit" that equate to an hourly  $L_{eq}$  approximately 2 dBA higher than the base limit.



## **Appendix E – Recommended Model Noise Ordinance**

## Appendix E – Recommended Model Noise Ordinance

The following is a model ordinance for noise control that has been developed specifically to improve control of ORV noise. Several of the components of this ordinance would also affect the way that other noise is measured and regulated. We have not analyzed the effect that these recommendations would have on all sources, but generally believe that this ordinance would make enforcement of noise regulations for all sources covered under these rules more effective.

The Model ordinance is followed by a discussion of “nuisance”- based noise regulations. We do not recommend nuisance based regulations as a means of improving regulation of ORV noise, but have provided a discussion and an example ordinance for jurisdictions that are considering such regulations.

### Ordinance Text- Most Stringent Recommendation <sup>8</sup>

#### Section 1. Authority and Purpose.

These rules are adopted pursuant to Ordinance \_\_\_\_\_, in order to establish maximum noise levels permissible in identified environments, and thereby to provide use standards relating to the reception of noise within such environments. Vessels, as defined in RCW 88.12.010(21) and regulated for noise under chapter 88.12 RCW (Regulation of recreational vessels), are exempt from chapter 173-60 WAC.

#### Section 2. Definitions.

- (1) "Background sound level" means the level of all sounds in a given noise environment excluding the sound from the specific source being measured.
- (2) "dBA" means the sound pressure level in decibels measured using the "A" weighting network on a sound level meter. The sound pressure level, in decibels, of a sound is 20 times the logarithm to the base 10 of the ratio of the pressure of the sound to a reference pressure of 20 micropascals.
- (3) "Department" means the \_\_\_\_\_ department.
- (4) "Director" means the director of the \_\_\_\_\_ department.
- (5) "Distribution facilities" means any facility used for distribution of commodities to final consumers, including facilities of utilities that convey water, wastewater, natural gas, and electricity.
- (6) "EDNA" means the environmental designation for noise abatement, being an area or zone (environment) within which maximum permissible noise levels are established.
- (7) "Fast response mode" means the response setting for sound level meters used to take measurements under these rules. All measurements are to be taken with the meter set to use Fast mode as defined in ANSI S1.1-1994.
- (8) "Leq" means the equivalent sound level, which is the constant sound level in a given time period that conveys the same sound energy as the actual time-varying A-weighted sound.

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<sup>8</sup> See Table D-1 for components of both “most stringent” and “less restrictive” options.

The applicable time period for the Leq must be specified. The technical definition of the Leq is included in ANSI S1.1-1994.

- (9) Lmax means the maximum sound level over a measurement interval as determined using a sound level meter set to "Fast" response time. The technical definition of the Lmax is included in ANSI S1.1-1994.
- (10) "Noise" means the intensity, duration and character of sounds, from any and all sources.
- (11) "Off-highway vehicle" or "OHV" means any self-propelled motor-driven vehicle not used primarily for transporting persons or property upon public highways nor required to be licensed under RCW 46.16.010.
- (12) "Off-road vehicle" or "ORV" means any nonstreet-licensed vehicle when used for recreational purposes on nonhighway roads, trails, or a variety of other natural terrain. Such vehicles include, but are not limited to, all-terrain vehicles, motorcycles, four-wheel drive vehicles, and dune buggies.
- (13) "Person" means any individual, corporation, partnership, association, governmental body, state agency or other entity whatsoever.
- (14) "Property boundary" means the surveyed line at ground surface, which separates the real property owned, rented, or leased by one or more persons, from that owned, rented, or leased by one or more other persons, and its vertical extension.
- (15) "Public highway" means the entire width between the boundary lines of every way publicly maintained by the Department of Transportation or any county or city when any part thereof is generally open to the use of the public for purposes of vehicular travel as a matter of right.
- (16) "Racing event" means any motor vehicle competition conducted under a permit issued by a governmental authority having jurisdiction or, if such permit is not required, then under the auspices of a recognized sanctioning body.
- (17) "Receiving property" means real property within which the maximum permissible noise levels specified herein shall not be exceeded from sources outside such property.
- (18) "Sound level meter" means a device that measures sound pressure levels and conforms to Type 1 or Type 2 as specified in the ANSI S1.4.-1983.

### **Section 3. Identification of Environments.**

- (1) Except when included within specific prior designations as provided in subsection (2) of this section, the EDNA of any property shall be based on the following typical uses, taking into consideration the present, future, and historical use, as well as the use of adjacent and other lands in the vicinity.
  - (a) Class A EDNA - Lands where humans reside and sleep. Typically, Class A EDNA will be the following types of property used for human habitation:
    - (i) Residential
    - (ii) Multiple family living accommodations
    - (iii) Recreational and entertainment (e.g., camps, parks, camping facilities, and resorts)
    - (iv) Community service (e.g., orphanages, homes for the aged, hospitals, health and correctional facilities)

- (b) Class B EDNA - Lands involving uses requiring protection against noise interference with speech. Typically, Class B EDNA will be the following types of property:
  - (i) Commercial living accommodations
  - (ii) Commercial dining establishments
  - (iii) Motor vehicle services
  - (iv) Retail services
  - (v) Banks and office buildings
  - (vi) Miscellaneous commercial services, property not used for human habitation
  - (vii) Recreation and entertainment, property not used for human habitation (e.g., theaters, stadiums, fairgrounds, and amusement parks)
  - (viii) Community services, property not used for human habitation (e.g., educational, religious, governmental, cultural and recreational facilities)
- (c) Class C EDNA - Lands involving economic activities of such a nature that higher noise levels than experienced in other areas is normally to be anticipated. Persons working in these areas are normally covered by noise control regulations of the Department of Labor and Industries. Uses typical of Class A EDNA are generally not permitted within such areas. Typically, Class C EDNA will be the following types of property:
  - (i) Storage, warehouse, and distribution facilities
  - (ii) Industrial property used for production and fabrication of durable and nondurable man-made goods
  - (iii) Agricultural and silvicultural property used for production of crops, wood products, or livestock, provided that a residence on land used for agricultural purposes and the area within 100 feet of any residence shall be considered a Class A EDNA

**[Alternative subsection (2) for areas covered by a local zoning ordinance]**

- (2) The designated EDNA for each zoning district shall be as follows:
  - (a) Residential zones [list residential zones] - Class A EDNA
  - (b) Commercial zones [list commercial zones] - Class B EDNA
  - (c) Industrial zones [list industrial, agricultural, and forest resource zones] - Class C EDNA, provided that a residence on land zoned for agricultural purposes and the area within 100 feet of any residence shall be considered a Class A EDNA
- (3) The EDNAs for special lands have been designated as follows pursuant to the procedures of the Administrative Procedure Act, chapter 34.04 RCW. [list any special areas and their appropriate EDNAs.]

**Section 4. Maximum Permissible Environmental Noise Levels.**

- (1) No person shall cause or permit noise to intrude into the property of another person when it exceeds the maximum permissible noise levels set forth below in this section.
- (2) Between the hours of 7:00 a.m. and 10:00 p.m., the 15-minute Leq shall not exceed the levels shown in Table E-1.
- (3) Between the hours of 7:00 a.m. and 10:00 p.m., the Lmax shall not exceed the levels shown in Table E-1.

**Table E-1. Permissible Noise Levels**

EDNA of Noise Source	EDNA of Receiving Property					
	Class A		Class B		Class C	
	Leq	Lmax	Leq	Lmax	Leq	Lmax
<b>Class A</b>	55	70	57	72	60	75
<b>Class B</b>	57	72	60	75	65	80
<b>Class C</b>	60	75	65	80	70	85

For purposes of assessing compliance with these limits, measured sound levels must be less than 2 dBA greater than the levels indicated to comply; conversely, measured Leq and/or Lmax levels 2 dBA or more higher than these limits constitute a violation of this rule.

- (4) Between the hours of 10:00 p.m. and 7:00 a.m., the Leq and Lmax limits are reduced by 10 dBA for noise from any EDNA source noise received in a Class A EDNA.
- (5) **Optional additional limits on evening hours of ORV noise** (choose one or more)
  - (a) Between the hours of 7:00 p.m. and 10:00 p.m., noise from off-road vehicles received in Class A EDNAs is reduced by 5 dBA from the limits shown in Table E-1.
  - (b) Between the hours of 7:00 p.m. and 9:00 a.m., noise from off-road vehicles is prohibited (i.e., may not be generated or received) in all Class A EDNAs.
  - (c) Between the hours of 10 p.m. and 7:00 a.m., noise from off-road vehicles is prohibited (i.e., may not be generated or received) in all Class A EDNAs.

**Section 5. Exemptions.**

- (1) The following shall be exempt from the provisions of Section 4 of this ordinance between the hours of 7:00 a.m. and 10:00 p.m.:
  - (a) Sounds originating from residential property relating to temporary projects for maintenance or repair of homes, grounds, and appurtenances.
  - (b) Sounds created by the discharge of firearms on authorized shooting ranges.
  - (c) Sounds created by blasting.

- (d) Sounds created by aircraft engine testing and maintenance not related to flight operations: Provided that aircraft testing and maintenance shall be conducted at remote sites whenever possible.
- (e) Sounds created by installation or repair of essential utility services.
- (2) The following shall be exempt from the provisions of Section 4(4) of this ordinance (i.e., the nighttime hours reduction):
  - (a) Noise from electrical substations and existing stationary equipment used in the conveyance of water, wastewater, and natural gas by a utility.
  - (b) Noise from industrial installations established prior to September 1, 1975 that exceeds the standards contained in these regulations and which, over the previous three years, has consistently occurred in excess of 15 hours per day as a consequence of process necessity and/or demonstrated routine normal operation. Changes in working hours that would affect exemptions under this regulation require approval of the department.
- (3) The following shall be exempt from the provisions of Section 4 of this ordinance, except insofar as such provisions relate to the reception of noise within Class A EDNAs between the hours of 10:00 p.m. and 7:00 a.m.
  - (a) Sounds originating from temporary construction sites as a result of construction activity.
  - (b) Sounds originating from forest harvesting and silvicultural activity.
- (4) The following shall be exempt from all provisions of Section 4 of this ordinance
  - (a) Sounds created by motor vehicles when regulated by chapter 173-62 WAC.
  - (b) Sounds originating from aircraft in flight and sounds that originate at airports which are directly related to flight operations.
  - (c) Sounds created by surface carriers engaged in interstate commerce by railroad.
  - (d) Sounds created by warning devices not operating continuously for more than five minutes, or bells, chimes, and carillons.
  - (e) Sounds created by safety and protective devices where noise suppression would defeat the intent of the device or is not economically feasible.
  - (f) Sounds created by emergency equipment and work necessary in the interests of law enforcement or for health safety or welfare of the community.
  - (g) Sounds originating from motor vehicle racing events at existing authorized facilities.
  - (h) Sounds originating from officially sanctioned parades and other public events.
  - (i) Sounds emitted from petroleum refinery boilers during startup of said boilers: Provided that the startup operation is performed during daytime hours whenever possible.
  - (j) Sounds created by the discharge of firearms in the course of hunting.
  - (k) Sounds caused by natural phenomena and unamplified human voices.
  - (l) Sounds created by motor vehicles, licensed or unlicensed, when operated off public highways EXCEPT when such sounds are received in Class A EDNAs.

- (m) Sounds originating from existing natural gas transmission and distribution facilities. However, in circumstances where such sounds impact EDNA Class A environments and complaints are received, the director or a designee may take action to abate by application of EDNA Class C source limits to the facility.

### **Section 6. Variances and Implementation Schedules.**

- (1) Variances may be granted to any person from any particular requirement of this chapter, if findings are made that immediate compliance with such requirement cannot be achieved because of special circumstances rendering immediate compliance unreasonable in light of economic or physical factors, encroachment upon an existing noise source, or because of unavailability of feasible technology or control methods. Any such variance or renewal thereof shall be granted only for the minimum time period found to be necessary under the facts and circumstances.
- (2) An implementation schedule for achieving compliance with this chapter shall be incorporated into any variance issued.
- (3) Variances shall be issued only upon application in writing and after providing such information as may be requested. No variance shall be issued for a period of more than 30 days except upon due notice to the public with opportunity to comment. Public hearings may be held, when substantial public interest is shown, at the discretion of the director.
- (4) Sources of noise subject to this ordinance upon which construction begins after the effective date hereof shall immediately comply with the requirements of this chapter, except in extraordinary circumstances where overriding considerations of public interest dictate the issuance of a variance.

### **Section 7. Enforcement Policy.**

- (1) Noise measurement for the purposes of enforcing the provisions of this ordinance shall be measured in dBA with a sound level meter, with the point of measurement being at any location within the receiving property. Enforcement shall be undertaken only:
  - (a) Upon receipt of a complaint made by a person who resides on or owns property in the area affected by the noise, or
  - (b) By any person using a park, recreational area, or wildlife sanctuary, or
  - (c) By a law enforcement officer performing periodic investigations in areas where complaints have been registered in the past.
- (2) If a person qualified under Section 7 (1)(a) or (b) has filed more than two written complaints and the director or a law enforcement officer has not investigated the noise and taken required measurements to determine compliance, that person may hire a qualified professional to perform sound level measurements and submit them for enforcement action. If the enforcement action results in a confirmation of the violation, the department shall reimburse the person who hired the professional for the costs of these measurements and any legal representation necessary to effect enforcement.
- (3) For enforcement purposes, each day, defined as the 24-hour period beginning at 12:01 a.m. in which violation of the noise control regulations in this ordinance occurs, shall constitute a separate violation.

- (4) Any determination of violation of the noise limits in this ordinance shall be based on a measured  $L_{eq}$  at least 2 dBA higher than the specified limits and/or a measured  $L_{max}$  exceeding the specified limits by 2 dBA or more.

### **Section 8. Notice of Violation and Order to Comply.**

- (1) Whenever the director has reason to believe that a maximum permissible sound level of this ordinance is being exceeded or that the terms of a variance have not been met, he/she may initiate an administrative proceeding and serve a written notice and order directed to the owner or operator of the source, or to the holder of the variance. One (1) copy shall also be posted on the property or source, if reasonably possible, and another copy shall be mailed to each complainant (if any) about the noise; additional copies may be mailed by the director to such other interested or affected persons as the director deems appropriate.
- (2) The notice shall contain a brief and concise description of the conditions alleged to be in violation, the provision(s) of this ordinance alleged to have been violated, and the sound level readings, if taken, including the time and place of their recording.
- (3) The order shall contain a statement of the corrective action required and shall specify a reasonable time within which the action must be accomplished.
- (4) Failure to comply with a final order issued by an Administrator or Hearing Examiner shall constitute a civil offense and any person convicted thereof shall be subject to fines not to exceed the following limits:
  - a) First offense: One hundred dollars (\$100)
  - b) Second offense: Three hundred dollars (\$300)
  - c) Third offense: Five hundred dollars (\$500)
  - d) Each day of failure to comply with a final order issued by the director shall constitute a separate offense.
- (5) The penalties imposed under this ordinance shall be in addition to any other sanction or remedial injunctive procedure that may be available at law or equity.

### **Section 9. Appeals.**

Any person aggrieved by any decision of the department in relation to enforcement of the maximum permissible noise levels provided for herein, the granting or denial of a variance, or the approval or disapproval of a local resolution or ordinance for noise abatement and control may appeal to the **[name of appropriate local appeal board, hearing examiner, commission, or elected body]**.

### **Nuisance-Based Noise Regulations**

Many local jurisdictions apply "nuisance" or "public disturbance" rules, either exclusively or in addition to sound level-based regulations. Noise rules based on whether a noise disturbs someone sufficiently to be considered a nuisance often require subjective judgments by enforcement personnel. Consequently, such rules can be difficult to enforce objectively and consistently because they depend on the perception (e.g., hearing ability) of the enforcement officer along with any predisposition or attitude the officer may have regarding the noise source. Therefore in our experience, the most effective public disturbance or nuisance rules are those that simply prohibit certain types of noise either during certain hours of the day or altogether.

Although we recommend against employing a nuisance type noise rule, in the event subjective rules are considered desirable, the following text provides an example of the provisions of possible nuisance/public disturbance rule.

A definition: “**Public nuisance noise**” means any unreasonable sound which annoys, injures, interferes with, or endangers the comfort, repose, health or safety of an entire community or neighborhood, although the extent of damage may be unequal.

### ***Public Nuisance Noises***

It is unlawful for any person knowingly to cause or make, or for any person in possession of property knowingly to allow or originate from the property, unreasonable noise that disturbs another, and to refuse or intentionally fail to cease the unreasonable noise when ordered to do so by a police officer or animal control officer. Unreasonable noise shall include the following sounds or combination of sounds:

A. Loud and raucous, and frequent, repetitive, or continuous sounds made by any animal, except that such sounds made in animal shelters, commercial kennels, veterinary hospitals, pet shops, or pet kennels licensed under and in compliance with this Code shall be exempt from this subsection; (provided, that notwithstanding any other provision of this chapter, if the owner or other person having custody of the animal cannot, with reasonable inquiry, be located by the investigating officer or if the animal is a repeated violator of this subsection, the animal shall be impounded by the pound master, subject to redemption in the manner provided;)

B. Loud and raucous, and frequent, repetitive, or continuous sounds made by any horn or siren attached to a motor vehicle, except such sounds that are made to warn of danger or that are specifically permitted or required by law;

C. Loud and raucous, and frequent, repetitive, or continuous sounds made in connection with the starting, operation, repair, rebuilding, or testing of any motor vehicle, motorcycle, **off-highway vehicle**, or internal combustion engine;

D. Loud or raucous, and frequent, repetitive, or continuous sounds created by use of a musical instrument, or other device capable of producing sound when struck by an object, a whistle, or a sound amplifier or other device capable of producing, amplifying, or reproducing sound;

E. Loud and raucous, and frequent, repetitive, or continuous sounds made by the amplified or unamplified human voice between the hours of ten (10:00) p.m. and seven (7:00) a.m. The content of the speech shall not be considered against any person in determining a violation of this subsection.



## **Appendix F – Equipment and Personnel Training Recommendations**

## **Appendix F – Equipment and Personnel Training Recommendations**

### **Equipment Recommendations**

This section describes the equipment requirements for measuring either the tailpipe sound levels as specified in RCW 49.09.120 or for measuring receiving property sound levels as specified in WAC 173-60 and the model ordinances discussed previously in this report.

Equipment requirements for the tailpipe noise emission measurements include:

- Sound level meter (see definition below)
- Windscreen
- Portable Tone Calibrator
- Portable or Hand Held Tachometer (Vibratory reed type or acceptable alternative) (for measuring vehicles with no tachometer)
- 20-inch string and/or measuring tape
- Notepad and writing implement and measurement documentation form for taking notes, drawing map, etc.

Equipment requirements for receiving property environmental noise measurements include:

- Sound level meter (see definition below)
- Windscreen
- Portable Tone Calibrator
- Tripod (optional)
- Notepad and writing implement and measurement documentation form for taking notes, drawing map, etc.
- Anemometer (for assessing windy conditions)

### **Definition – Sound Level Meter**

For enforcement purposes and compliance determinations, the appropriate personnel will use a sound level meter that measures sound pressure level and conforms to Type 1 or Type 2 standards as specified in the American National Standards Institute (ANSI) Specification S1.4-1983. The sound level meter shall have, at a minimum, the following features or capabilities:

- Integrating (i.e., able to measure interval  $L_{eq}$ )
- Measures the  $L_{max}$
- Fast response
- Frequency Weighting A
- Dynamic range of at least 110 dBA with a measurement range of 30 to 140 dBA
- Exchange rate of 3 dB
- Free-field microphone
- Field calibration capabilities
- Factory calibrated and certified once a year]

- Ability to download data to computers or print out data directly to a printer (optional)

Agencies should have on hand more than one sound level meter with calibration dates of the equipment separated by at least 3 months. This will allow equipment to be sent in for annual cal/cert checks and not leave agencies without equipment on hand to conduct noise monitoring.

Numerous manufacturers make sound level meters that meet the basic requirements outlined above. They include: Quest, Ono Sokki, Larson Davis, Bruel & Kjaer, Rion, 01dB, and CEL. Some specific example models are listed below:

### **Quest**

2200 – Type II sound level meter. Used with QC-10 calibrator.

2200 SPDP (Sound Patrol) – Type II sound level meter with capability of attached digital printer system. Used with QC-10 calibrator.

1200 – Type I sound level meter. Used with QC-20 calibrator.

1200 SPDP (Sound Patrol) – Type I sound level meter with capability of attached digital printer system. Used with QC-20 calibrator.

### **Ono Sokki -**

LA-1240 – Type II sound level meter. Used with either SC-2120 or SC-3100 calibrator.

### **Larson Davis -**

LD720 – Type II sound level meter. Used with CAL150 calibrator.

LD812 – Type I sound level meter. Used with CAL200 calibrator.

### **Bruel and Kjaer -**

2240 – Type I sound level meter. Used with 4231 calibrator.

## **Personnel Skill and Training Recommendations**

The skills required for noise compliance enforcement personnel are generally the same as required for all law enforcement personnel. The basic skill set for noise compliance enforcement personnel should include:

- Must possess a high school diploma or G.E.D
- Must be able to read and write clearly
- No hearing impairment
- Basic computer skills

Additional skills that would be very useful for noise compliance enforcement personnel (and are often required for law enforcement personnel) include:

- Ability to interact effectively with a wide diversity of people
- Ability to analyze and solve problems
- Ability to apply laws and policies in a variety of complex situations

- Ability to exercise independent discretion using good, sound judgment
- Ability to be confident in approaching, taking control of, and resolving situations

Potential noise compliance enforcement personnel with the above set of skills should be able to adequately understand and subsequently implement the materials and processes introduced in the training program.

An adequate initial training program should be approximately 8 hours in length. Subsequent annual refresher courses approximately 4 hours in length could also be conducted to ensure ongoing consistency in following the procedures and to introduce any new issues or equipment.

An optional supplement to the training program could include a “hotline” for noise compliance enforcement personnel to call and ask questions of a person experienced and knowledgeable in noise compliance issues and measurements. This person could be an individual contracted by the state or by a local jurisdiction (i.e., retired noise compliance enforcement person, environmental noise consultant, etc.).

### **Estimated Range of Costs for Implementation**

The costs for implementation and ongoing operation of a proposed ORV noise compliance enforcement program are difficult, if not impossible, to accurately estimate at this time. However, the costs for individual elements of the program can be roughly estimated. These costs are outlined below.

#### **Equipment**

The costs for sound level meters can vary widely, depending on the level of accuracy (i.e., Type I meters are typically more expensive than less accurate Type II meters) and the number of features desired. The meters required for adequate noise compliance assessments do not need multiple features, which tend to increase the costs of a sound level meter (e.g., statistical descriptors, frequency band information, real-time analysis). The following estimated cost ranges include a calibration device and storage case.

The prices for Type II sound level meters typically range between \$1,600 and \$2,500 for a meter, windscreen, calibrator, and storage case.

The prices for Type I sound level meters typically range between \$2,500 and \$4,000 for a meter, windscreen, calibrator, and storage case.

Optional accessories such as small, portable printers suitable for use in the field (available with the Quest 1200 and 2200 SPDP meters) could cost from \$500 to \$700. Other accessories such as tripods, anemometers, or upgraded storage cases could cost approximately \$50 to \$300.

#### **Noise Enforcement Personnel**

Each jurisdiction will require at least one, if not several, noise compliance enforcement officers. It is anticipated that most jurisdictions will have existing law or other enforcement officers trained to perform noise compliance enforcement. These officers will likely continue to spend the majority of their time conducting common law enforcement tasks, but may include noise compliance enforcement duties during a small percentage of their overall time. Therefore, the

cost for noise compliance enforcement officers can generally be estimated as a percentage of the cost for an individual law enforcement officer.

The estimated annual cost for employing a law enforcement officer will vary depending on location, but the base salary can be expected to generally be between \$40,000 and \$60,000 a year. With the inclusion of benefits, the actual cost for employing a law enforcement officer can range from approximately \$56,000 to \$84,000 a year. However, only a minimal portion of an officer's time would likely be spent responding to noise complaints and/or conducting compliance enforcement. For purposes of this cost estimate, we estimate that between 2% and 5% of an officer's time in any given year would be spent on these tasks. So the estimated cost ranges from approximately \$1,120 to \$4,200 for each noise compliance enforcement officer.

In addition to the basic costs for an officer to conduct noise compliance tasks as part of his/her job, additional costs may be incurred for the officer to attend an annual training course (either the day-long short course or the 4-hour refresher course). The cost for the officer's time would likely be incorporated in the 2% to 5% of the annual officer's time dedicated to noise issues. However, the cost of attending the training program could range from \$500 to \$2,000, unless part of the cost is covered by the state. Travel and expenses to attend the training session could cost another \$500 if the program is not offered locally.

### **Training Course and Training Materials**

As part of this process, the state may choose to hire a firm to prepare a training course and training materials. Our estimated costs for such a program are provided below.

- Initial cost for preparing 8-hour Short-Course and Materials – \$5,000 to \$10,000
- Initial cost for preparing 4-hour Refresher Course and Materials - \$1,000 to \$3,000
- Cost for conducting training course – \$2,500 to \$4,000 each course
- Hotline to Training Staff and/or Noise Consultant for questions regarding measurements – overall hotline paid for by state, or individual jurisdictions could choose to have a consultant on retainer to provide hotline assistance when necessary. Cost varies depending on need to use hotline. The costs would range from \$85 to \$150 for every hour of assistance.

## **Training Program Recommendations**

The training program outlined below consists on an initial full-day training session and a half-day refresher course that could be provided on a periodic basis as needed.

### **Full-Day Training Session**

#### **Overview of Noise Terminology and Principles (Course duration: 2 hours)**

This portion of the training program would provide enforcement trainees a background primer on noise. Topics to be covered include basic noise principles such as defining noise and sound pressure, the physical properties of sound, how humans perceive sound, and the decibel scale. It would consider how different types of airborne sounds (e.g., point sources and line sources) propagate and attenuate in the environment, how noise levels combine, how sounds are measured, and the essential noise metrics used in regulations and enforcement (i.e.,  $L_{eq}$ ,  $L_{max}$ ). It

would discuss the instruments and techniques used in measuring sound. And lastly, it would provide a brief review of the potentially adverse physiological and psychological effects of noise. *Potential* major headings of issues that would be included in this portion of the training session follow.

- What is Noise
- Noise Principles
- Perception and the Decibel Scale
- Noise Propagation
- Noise Measurements and Metrics
- The Effects of Noise on People
- Q&A

### **The Noise Ordinance (Course duration: 1 hour)**

This section would present the elements of the noise ordinance and the specific terminology involved. It would explore source and receiver land use types along with environmental designations for noise abatement (EDNAs) defined in the WAC and in the model ordinance.

Other key components of the rule could include time of day restrictions imposed on recreational ORV use (if applicable), the primary mechanism that drives the enforcement of the rule (citizen complaints), pertinent exemptions, and an introduction to how compliance with the limits is determined. The types and extent of penalties for noncompliance would be presented as well as an overview of documentation and record keeping required by the jurisdiction. *Potential* major headings of issues that would be included in this portion of the training session follow.

- Overview of the Noise Ordinance
- Important Terms and Definitions
- Key Components of the Ordinance
  - EDNA classifications
  - Maximum permissible sound levels
  - Time of day restrictions (if applicable)
  - Mechanisms of enforcement (primarily complaint driven but should also include methods for spot checks on public lands/trails)
  - The need to respond to complaints
  - Exemptions
  - Determining compliance with the limits
  - Penalties
  - Documentation and record keeping
- Q&A

### **Application and Enforcement (Course duration: 2 hours)**

This section covers application and enforcement of the noise limits. The limits of concern apply to all Class A EDNA receivers as defined in the rule, but the limits vary depending on the source and the source property type.

Most of the discussion would focus on proper measurement techniques, including consideration of background sound levels from sources not subject to compliance, measurement location,

calibration and use of the sound level meter, duration of the measurement, and complete documentation of the measurement, including a site drawing depicting source/receiver locations, meter ID, a description of the audible noise sources and field conditions, and measured sound levels in terms of  $L_{eq}$  and  $L_{max}$ . This information would be recorded on a standard form, an example of which is included in Attachment 1.

Discussion also would include investigation procedures to be applied to citizen-driven complaints to ensure complaints will be handled thoroughly and consistently across jurisdictions. The appropriate procedure begins with timely response. If applicable, enforcement personnel may also initiate an enforcement action if the officer is compelled to act at his/her discretion to a noise-driven activity that may be noncompliant.

Finally, this section would conclude with a discussion of the need to provide copies of the completed compliance assessment form to the complaining citizen and others. *Potential* major headings of issues to be included in this portion of the training session follow.

- Timely Response
- Standard Operating Procedures for Environmental Noise Measurements
- Compliance Levels
- Reporting
- Q&A

### **Tailpipe Noise Restriction (Course duration: 0.5 hour)**

In addition to the environmental noise limits, Washington State also applies an ORV tailpipe noise limit. Consequently, enforcement officers may at times need to measure tailpipe noise to ensure compliance with the state limits. Additionally, enforcement officers may at times opt to measure tailpipe noise levels to assist in educating an ORV owner or rider about the applicable law. The standard operating procedure for measuring tailpipe noise levels would be discussed and included in a hands-on training portion. A sample form outlining the pertinent data collected as part of an enforcement action tailpipe noise level measurement is included in Attachment 2.

### **Hands-On Demonstration (2.5 hours)**

The next portion of the enforcement officer training session would be to employ what has been learned about noise, sound measurement, and enforcement of the noise rules in a hands-on session covering the following elements:

- Proper Use and Care of the Meter and Microphone
- Field Calibration of the Meter
- The Need for Annual Factory Certification
- Basic Meter Programming
- Measurement Documentation

It would also include a demonstration of the proper techniques for measuring tailpipe noise levels. *Potential* major headings of issues to be included in this portion of the training session follow.

- Meter/Microphone handling and care

- Basic Meter Configuration
- Field and Factory Certified Calibration
- Documentation and Data Transfer
- Simulation of Measurement Methods
  - Tailpipe measurement – SAE –J1287
  - Environmental noise measurement
- Q&A

### **Half-Day Refresher Training Session**

Refresher training should occur annually for all noise enforcement personnel. The purpose of this session is to review the applicable noise rules and standard measurement procedures taught in the full session. In addition to the review, any changes in noise rules, technology advances, or changes in standard operating procedures can be presented. This refresher not only provides an opportunity to incorporate new or changing components, but also provides the officer with a chance to ask real-life questions gained from field experience and/or to perform hands-on simulations in the event that little to no enforcement activity has occurred in a particular jurisdiction. *Potential* major headings of issues that would be included in this portion of the training session follow.

- Review of Noise Principles and Propagation
- Review of Noise Ordinance Components
- Review of Application and Enforcement Issues
- Hands-on Review of Standard Measurement Procedures
- Updates and Changes
- Q&A

# Attachment 1

## Off Road Vehicle Noise Measurement Report

### Measurement Setup Information

Date of Measurement:		Day of Week:	
Approximate Temperature:	Approx % Clouds:	Approx Wind Speed:	
Investigation Officer:			
Name/Title of Responsible Party Advised of Complaint:			

### Complainant/Source Information

Name/Address of Source:		Name/Address of Complainant/Receiver:	
Zoning of Source:		Zoning of Complainant/Receiver:	

### Description of Noise Source

Number of ORVs:
Type (make, model):
Exhaust Type (stock, aftermarket):
Other Notes:

### Description of Physical Environment; Include sketch on reverse (including source and locations)

Physical Environment:

### Description of Sound Level Measurement Device

Make/Model:	Serial #:
Date Certified:	Time of Field Calibration:

### Background Sound Level Measurement Results (if feasible)

Start Time	Duration (in min)	Leq	Lmax	Notes

### Source Sound Level Measurement Results (at receiving property)

Start Time	Duration (in min)	Leq	Lmax	Notes

## Attachment 2

### Off Road Vehicle Tailpipe Noise Measurement Test Results

#### Measurement Setup Information

Date of Measurement:		Day of Week:	
Approximate Temperature:	Approx % Clouds:	Approx Wind Speed:	
Investigation Officer/Official:			

#### ORV Tailpipe Source Information

Name/Address of ORV Owner/Operator:	
Type (make, model):	
Exhaust Type (make, model, stock/aftermarket):	
Other Notes:	

#### Description of Sound Level Measurement Device

Make/Model:	Serial #:
Date Certified:	Time of Field Calibration:

#### Background Sound Level Measurement Results (if feasible)

Start Time	Duration (in min)	Leq	Lmax	Notes

#### Tailpipe Sound Level Measurement Results (using SAE J1287 JUL98)

Start Time	Duration (in min)	Lmax	Notes

Tailpipe sound level measurement to follow **SAE J1287 JUL98**. The following summarizes the procedures of this test, and should not be used as a reference:

Sound level measurement taken 20 inches from the tailpipe exhaust opening. Meter placed at a 45 degree angle from the tailpipe centerline, perpendicular to this path. ORV gear box placed in neutral, and engine run at approximately 1/2 redline rpm value. Maximum sound level recorded.

## **Appendix G – ORV Noise Solutions Workshops**

## Appendix H – ORV Noise Solutions Workshops

Lacey Community Center, 7 pm, 10/10/06 (about 40 persons)

1. **Welcome**, introductions, about the Interagency Committee for Outdoor Recreation (IAC), our task, work finished to date (Greg Lovelady)
  - a. Introductions of the team present: ESA Adolfson (Mark Johnson, Jackie Dingfelder), Geomatrix (Richard Steffel, Kevin Warner), IAC (Greg Lovelady, Jim Fox, Jim Eychaner, Scott Chapman).
  - b. “IAC” is the state agency charged by the legislature with completing this ORV noise solutions project. Most know IAC as the state’s principal provider of grants for recreation and habitat conservation, though we are often asked to carry out other assignments.
  - c. Legislature directed IAC to provide recommendations for addressing “*excessive noise from ORVs.*” Specifically asked to: review laws, provide recommendations on equipment for enforcement, model ordinances, education, and a grant program.
  - d. We are here to get your ideas-feedback. We need more than a “show of hands” telling us *who is in favor* and *who is against* different ideas - we need to know *why you hold your opinions*. This is your chance to explain why your solution is the best answer. If we work together on this, the legislature is ultimately going to make the right decision.
  - e. How we arrived to this point: Legislative ORV Noise Task Force meetings (2005); Legislative hearings leading to ESSB 6384 directive to IAC, formation of seven person advisory committee and selection of Adolfson-Geomatrix to help draft the report to the legislature, website, press releases, email announcement, two workshops (2006).
2. **Workshop Overview** (Jackie Dingfelder, ESA Adolfson). Jackie reviewed the workshop agenda and the ground rules for participation (respect, etc.) listed on the back of each agenda. She then introduced the next speaker for presentation of options.
3. **Options** (Richard Steffel, Geomatrix, Senior Scientist, Acoustical specialist).
  - a. We are all here to work on developing recommendations, options.
  - b. Two approaches: address noise emitted from ORVs and/or noise received at private property lines. Laws exist for both: 105 dBA at 20 inches from exhaust (highest in nation). Lowering this would be a major contributor to addressing the issue (see handout or display board). Ninety-six dBA as a new limit has been discussed.
    - (See handouts) Every 10 dBA change in sound means a 100 percent change in loudness. For example, 95 dBA is half as loud as 105 dBA. Most states with noise laws have a 96 dBA limit. Washington’s limit of 105 dBA is very loud.
    - How should sound be enforced? Periodic certification program?
    - What about after-market products that defeat current laws.
  - c. Sound received at property lines. Since early 1970s a law has been on the books.
  - d. Many jurisdictions (local) generally use one of these approaches.
  - e. Discussed:
    - “Time weighted” limits (see handouts) as examples: disallow exceeding certain limits based on the time of day and/or disallow based on the day (for example, weekends and holidays). Might this approach work?
    - Possibility of stepped up education programs and/or more enforcement. Mentioned an issue related to enforcement: may be difficult to find a qualified officer to respond.
    - Perhaps outlaw ORV activities in certain land use zones (for example, residential).
    - Perhaps create more places to ride to reduce the need to ride where noise disturbs others.
4. **Audience questions, comments**
  - a. Audience member #1: what about persons that complain about “nuisance ORV noise?” How can we (ORV users) not be targeted like this?
  - b. Audience member #2: what about “LEQ” (used by Environmental Protection Agency), which uses sound spikes, which are almost impossible to comply with. Resolving this could eliminate the need for this type of meeting. Steffel response: yes, there are several types of sound limits. LEQ is a simplified way of time-weighting, and could be a usable approach; there are simpler ways of accomplishing same thing.

- c. Audience member #3: what about residential yard equipment, and why are not they on today's agenda. Steffel response: these items usually are not "on" for long periods; are often exempted by local jurisdictions.
  - d. Audience member #4: what about how loud home yard equipment is over distances?
  - e. Audience member #5: what about jet aircraft (appears on the display board/handout)? Steffel response: those are there for illustration only.
  - f. Audience member #6 (Andrea Fontenot): resents personal attack evidenced in the handout distributed tonight by John Eaton. Why try to intimidate people who seek peace and quiet, distract attendees from the purpose of tonight's meeting?
  - g. Jackie: As facilitator, she asked everyone to please review the ground rules distributed earlier with the agenda. She emphasized that that we need to stay on-task and refrain from personal attacks.
5. **Small Group Breakout Session** (Jackie). Jackie explained that this portion of the agenda is designed to solicit direct input from the audience on recommended options for dealing with ORV noise and that each group would be assigned to respond to six questions (same questions for each group). After an hour, a representative from each group would report back on the results of their group's discussion-responses to the six questions. She asked audience participants to "count off" until six breakout groups were identified. The audience was divided into six groups, each group agreed on a note-taker and someone to report back at the end of the evening. For approximately an hour, the six groups worked through the questionnaire in individual groups.
6. **Group reports summary** (from flip charts):
- a. Group #1: (began with page 1 of questionnaire.)
    - Question (controlling ORV sound at the source): Should the current ORV sound limit be reduced? Existing noise limit (105 dBA @ 20 inches from the tailpipe) is higher than all other states; should it be lowered to a level similar to other states (96 dBA)?
      - Group participant feedback.
        - ~ Not to 96dBA but maybe 98 dBA
        - ~ To preserve right to ride, would be okay
        - ~ Want to have a positive impact on community
        - ~ Okay as is (at 105)
        - ~ Don't see a problem
        - ~ If you lower once, will it be lowered again and again?
        - ~ If you lower it-there will be more areas to ride
        - ~ Thought 99 dBA was too loud on his own bike
        - ~ When you have it over 100-your ears ring
        - ~ "Leaving at 105 dBA seems like we don't care, but we do"
        - ~ Needs to be changed-easy to do and has measurable effect
    - Question (controlling ORV sound at the source): Whether or not the sound level is reduced, how should Washington's ORV noise limit be enforced?
      - Should we:
        - ~ Encourage self regulation via a stepped-up education program
        - ~ Point of original sale of vehicle
        - ~ Point of (prior to) resale
        - ~ Require an annual certification, for example at retail or repair outlets, trailheads, tracks, etc.
      - Group participant feedback.
        - ~ Too easy to change so enforcement at tag renewal would be ineffective
        - ~ Neighborhood noise team w/training
        - ~ Neighborhood people could create bias
        - ~ Who will pay for enforcement?
        - ~ Start W/education-run a 1-2 year campaign
        - ~ Require education about noise is rider-safety certification
        - ~ Can't get the cops out there resource issue
    - Question (controlling ORV sound at the source): Should the state address (for example, restrict or prohibit) the sale of after-market products that cause or allow ORVs to exceed noise limits?
      - Please explain.

- ~ If “no”, why not?
- ~ If “yes”, why is this a good idea?
- o Group participant feedback.
  - ~ If you prohibit after market do it for everything
  - ~ After Market pipes US forest Service, competition <96dba
  - ~ Goal in her store is 98dba or lower
  - ~ In-state equipment bans can’t stop Internet-catalogue purchases; should be OK to have an after-market product if the standard is met.
  - ~ EPA doesn’t enforce their own rules
  - ~ Dealership limits its own products no aftermarket allowed
  - ~ Stock machines –957. buy ATV’s w/ <96dba
  - ~ Okay if meets the standards
  - ~ Motocross competition pipes exceed the limits
- b. Group #2: (began with page 1 of questionnaire, Kevin Warner)
  - Question (controlling ORV sound at the source): Should the current ORV sound limit be reduced? Existing noise limit (105 dBA @ 20 inches from the tailpipe) is higher than all other states; should it be lowered to a level similar to other states (96 dBA)?
    - o Participant feedback.
      - ~ Makes Sense-suggested for all states.
      - ~ Follow NMA or AMA 98 dBA?
      - ~ Loud bikes do not equal more power
      - ~ Education for riders
      - ~ Loud bikes are a rush
    - Question (controlling ORV sound at the source): Whether or not the sound level is reduced, how should Washington’s ORV noise limit be enforced?
      - o Should we:
        - ~ Encourage self regulation via a stepped-up education program
        - ~ Point of original sale of vehicle
        - ~ Point of (prior to) resale
        - ~ Require an annual certification, for example at retail or repair outlets, trailheads, tracks, etc.
      - o Participant feedback.
        - ~ Random Testing
        - ~ Education
        - ~ Not currently enforced-no equip, training
        - ~ Point of sale not a problem
        - ~ Aftermarket pipes are problem
        - ~ Irritating, but temporary
        - ~ Audible at far distance from source
        - ~ Education @ point of origin-Take a class
    - Question (controlling ORV sound at the source): Should the state address (for example, restrict or prohibit) the sale of after-market products that cause or allow ORVs to exceed noise limits?
      - o Please explain:
        - ~ If “no”, why not?
        - ~ If “yes”, why is this a good idea?
      - o Participant responses.
        - ~ No targeting ORVS unfairly
        - ~ No because most aftermarket exhaust are quieter than stock
        - ~ Internet allows for any purchase
        - ~ No change 7am –10pm OK
        - ~ Rare to ride late at night

- ~ ORV Parks have own hours
- ~ No-It would be discriminating
- ~ Burden on law enforcement.
- ~ Random testing great
- ~ Complaint based is better; no complaints means no one is affected
- ~ Random means no complaints would happen
- ~ Density an issue-laws should address density
- ~ Enforcement needs to be more effective
- ~ Code enforcement and dBA enforcement
- ~ Would eliminate problems, good for sport.
- ~ No-Would cause big problems
- ~ Yes should be more personnel
- ~ Yes
- ~ Good idea
- ~ Over crowding at existing parks
- ~ Min. district would not work
- ~ Doesn't solve problems in communities-lower property values i.e. Spokane Valley
- ~ Should be on table-hard to change easy to enforce, courtesy is key
- ~ No one solution-needs to be a mix of solutions.
- o Further notes on responses (GL).
  - ~ Follow NMA-AMA rules
  - ~ Loud bikes, regardless should be OK, "it's a rush"
  - ~ Random testing
  - ~ Education
  - ~ Point of sale bikes already meet the standard
  - ~ After-market pipes are a problem
  - ~ Educate at point-of-sale; maybe require a class
  - ~ Targeting after-market products won't work (see catalogues-Internet purchases)
  - ~ Why target ORVs? It's rare that people ride late at night.
  - ~ Would be a burden on law enforcement.
  - ~ Random testing is a great idea
  - ~ Complaint based response is best.
  - ~ Population density is an issue; complaints go up.
  - ~ Tracks in someone's backyard should be addressed.
  - ~ Item "c": yes, there should be specific noise officers
  - ~ Item 3: yes, more riding areas are needed, but will be difficult
  - ~ Minimum distance won't work; would lower property values (Spokane, can't ride ORV in residential areas).
- c. Group #3: (began with page 1 of questionnaire, Scott Chapman)
  - Question (source noise emission control issues/options): Should current limit be reduced?
    - o Participant feedback.
      - ~ Yes, All were very supportive of the 96 dBA limit as long as it is based on the SAE J12 87 test
      - ~ Need to have some exceptions for special events.
  - Question (source noise emission control issues/options): How should noise limit be enforced?
    - o Participant feedback.
      - ~ This is a "valid option" (two persons said this)
      - ~ Not Supported –not a valid option – too expensive, would require extension infrastructure to be created by state to address the issue.

- ~ Not Supported; discriminates against ORV users. Why target only ORVs?
- ~ Enforcement is a critical component. Suggest having officers issue warnings to owners whose equipment fails sound limit. If owner does not fix machine within a set period of time, issue owner a ticket.
- Question (source noise emission control issues/options): Should state address the sale of after-market products?
  - Participant feedback.
    - ~ No. Current federal law that prohibits owners from modifying equipment with closed course pipes if the machine is not to be used on closed courses.
- Question (options for controlling ORV sound that reaches neighboring properties): Should we consider time of day/time of week restrictions?
  - Participant feedback.
    - ~ No. Focus on point source not sound at property line. This should be a local issue and law and a statewide law. Any restrictions should apply to all noise sources not just ORVs. Was acknowledged that enforcement of numerous local ordinances could be difficult and confusing to users.
    - ~ Day Restrictions are OK as long as they apply to all noise sources, not only ORVs.
- Question (options for controlling ORV sound that reaches neighboring properties): What about enforcement options?
  - Yes. We need a reasonable noise limit like 96 dBA and it needs to be enforced. Need active enforcement at high use areas. Need users to educate other users.
  - No. Not enough funds to have specific noise enforcement personnel.
  - No. Not enough funds to have specific noise education personnel. Would support a state funded education campaign if it could target ORV users, dealers, clubs, etc. (Similar to Click-it or Ticket)
- Question (options for controlling ORV sound that reaches neighboring properties): What about noise impact prevention options?
  - No. Think that all ORVs should just meet 96 dBA limit. If there is a complaint, then the state or local general noise nuisance laws should apply.
  - No. Hard to define land types. Many were unclear to what this option would mean.
  - Yes. There is a great need for additional opportunity.
- d. Group #4: (began with page 2 of questionnaire, Pene Speaks)
  - Question (controlling ORV sound that reaches neighboring properties): Should we consider time-of-day/day-of-week restrictions?
    - Choices.
      - ~ Hour restrictions. For example, make existing limits 10-dBA lower during nighttime hours (10 p.m. to 7 a.m.), which may not be protective of sensitive uses in the early morning and evening. Should more restrictive hours be applied?
      - ~ Day restrictions. Some noisy activities (e.g., construction) are prohibited in some jurisdictions on some days of the week (e.g., Sundays and holidays). Should similar restrictions be considered for ORV sounds?
    - Participant feedback.
      - ~ Sure-go for hours
      - ~ May be different if noise is reduced at tailpipe
      - ~ No
      - ~ Either limit hours or limit distance. Not both
      - ~ Should be for all noise (not just ORV).
      - ~ No day restrictions
      - ~ If overall sound is reduced day restrictions not needed

- ~ Can't consider in vacuum.
- Question (controlling ORV sound that reaches neighboring properties): (Enforcement Options). Current rules, when enforced, are mostly applied only in response to complaints. Should there be a more active noise compliance education and/or enforcement program?
  - Options.
    - ~ Instead of leaving enforcement to the police or sheriff, should there be specific noise enforcement personnel?
    - ~ Instead of leaving education to the police or sheriff, should there be specific noise education personnel?
  - Participant feedback.
    - ~ Education and enforcement program won't work
    - ~ Focus first on education
    - ~ People should already know the rules
    - ~ No specific noise enforcement personnel
    - ~ Could be of some value
    - ~ Yes, if enforcement was aimed at gross violators
    - ~ Get word out
    - ~ Education won't work
    - ~ Maybe depends on other factors
- Question. (Noise Impact Prevention Options.) Should we have a minimum distance buffer requirement (for example, require an ORV track to be "x" feet from a property line).
  - Choices.
    - ~ Prohibit ORV use near certain land types
    - ~ Create additional ORV riding opportunities in designated areas with compatible land uses
  - Participant feedback.
    - ~ No minimum buffer distance
    - ~ Maybe a benefit
    - ~ Lower noise limit instead
    - ~ No land type restrictions
    - ~ Depends what else is required
    - ~ more legal ORV riding places.
    - ~ OK 96 SAE J12 87
    - ~ a&b supported
    - ~ c &d not supported
    - ~ e-Law enforcement warning/ticket
    - ~ 3.a. No –existing Federal land.
  - Further notes on this presentation (GL)
    - ~ Wide range of opinions with this group. Much depends on emissions at vehicle.
    - ~ Time of day-day of week issues:
    - ~ Item 2: Enforcement options: (a) E&E noise program won't work; first focus on education; people should already know sound level rules. (b) "no" to specific noise personnel; yes, could be of some value; 'yes' if aimed at gross violators.
    - ~ Item 3: Prevention options. Again, depends on emission at vehicle. (a) No to minimum buffer distance; could be a benefit; lower the noise limit instead. (b) no to land type restrictions; depends on what else is required.
- e. Group #5 (began with page 1 of questionnaire, Jim Fox)
  - Question (source control questions). Should the current ORV sound limit be reduced? Existing noise limit (105 dBA @ 20 inches from the tailpipe) is higher than all other states; should it be lowered to a level similar to other states (96 dBA)?
    - Participant feedback.
      - ~ No consensus on how ORV sound is measured

- ~ Wouldn't affect me-
- ~ 88db-91db- tested stock
- ~ Don't reduce at 100' is like normal speed
- ~ Don't reduce-105 not that loud and usually quieter
- Question: Whether or not the sound level is reduced, how should Washington's ORV noise limit be enforced?
  - Choices.
    - ~ Encourage self regulation via a stepped-up education program
    - ~ Point of original sale of vehicle
    - ~ Point of (prior to) resale
    - ~ Require an annual certification, for example at retail or repair outlets, trailheads, tracks, etc.
  - Participant feedback.
    - ~ Manufacturers have to comply with all states
    - ~ Dealers selling aftermarket sound reducers.
    - ~ Worry if reduced, next year will be reduced more.
- Question: Whether or not the sound level is reduced, how should Washington's ORV noise limit be enforced?
  - Choices.
    - ~ Encourage self regulation via a stepped-up education program
    - ~ Point of original sale of vehicle
    - ~ Point of (prior to) resale
    - ~ Require an annual certification, for example at retail or repair outlets, trailheads, tracks, etc.
  - Participant feedback.
    - ~ Likes (a)- Only (a) feasible-easy to enforce noise complaints (because wasn't an issue or was temporary).
    - ~ a-dealers get videos from mfg-safety, courtesy to buyers-State send videos to owners.
    - ~ Sheriffs have to staff/ money
    - ~ Never see them (cap forest).
    - ~ I do- Tahuya
    - ~ Noise is regulated at events
    - ~ 98 water-cool 102 over-cooled
    - ~ NMA event standards.
    - ~ D won't work.
    - ~ No one will address problems.
    - ~ Shouldn't restrict on closed course (no public) tracts
    - ~ Could purchase via Mail, internet
    - ~ Work w/aftermarket cos. To do more to reduce noise and improve performance at same time.
    - ~ Ridiculous.
- Question (controlling ORV sound that reaches neighboring properties). Should we consider time-of-day/day-of-week restrictions?
  - Options.
    - ~ Hour restrictions. For example, make existing limits 10-dBA lower during nighttime hours (10 p.m. to 7 a.m.), which may not be protective of sensitive uses in the early morning and evening. Should more restrictive hours be applied?
    - ~ Day restrictions. Some noisy activities (e.g., construction) are prohibited in some jurisdictions on some days of the week (e.g., Sundays and holidays). Should similar restrictions be considered for ORV sounds?
  - Participant feedback.
    - ~ No restrictions-would lead to more & More
    - ~ Current laws ok, if restrictions on hours or days-should be for all noise.

- ~ Time restriction can work but should be decided by community for community not from on high covenants
- ~ Then you can decide if you want to live there or not.
- Question (enforcement options). Current rules, when enforced, are mostly applied only in response to complaints. Should there be a more active noise compliance education and/or enforcement program?
  - Options.
    - ~ Instead of leaving enforcement to the police or sheriff, should there be specific noise enforcement personnel?
    - ~ Instead of leaving education to the police or sheriff, should there be specific noise education personnel?
  - Participant feedback.
    - ~ If so, pay from property tax not ORV money
    - ~ If no complaint, no problem-don't need to look for problems.
    - ~ Define "residential area"
    - ~ All put property? Density?
    - ~ B&C-Scary having someone else enforcing laws
    - ~ Consider if only 1 neighbor complains.
    - ~ If officers don't see problem-probably not a problem.
  - Further notes from this presentation (GL)
    - ~ Source noise: most all new machines meet the lower noise limits when sold.
    - ~ Some concern was expressed that if the noise limits were lowered now, it could be easier to unreasonably further lower the sound limit in the future ("camel's nose under the tent" concept).
    - ~ Dealers receive videos, which are passed along to ORV equipment purchasers, addressing such topics as courtesy, environmental sensitivity. Perhaps the state could produce such a video?
    - ~ It would easy to abuse a certification program.
    - ~ Regulate noise at events using NMA standards.
    - ~ After market equipment: too difficult to enforce (Internet, catalogues). Note some after market equipment reduces noise without affecting performance.
    - ~ (Page 2 of questionnaire) Voluntary control of noise sometimes works (gave example of people around a lake coming together to agree on hours of machine operation).
    - ~ Most of current noise laws are OK. Days of week – hours of day: can be effective if done at state level.
    - ~ Do we need "noise cops"?: No – a complaint based system is better; don't fund from state NOVA funds; should be paid by all citizens (property tax, for example).
- f. Group #6 (began with page 2 of questionnaire, Jim Eychaner)
  - Question (controlling ORV sound that reaches neighboring properties): Should we consider time-of-day/day-of-week restrictions?
    - Choices.
      - ~ Hour restrictions. For example, make existing limits 10-dBA lower during nighttime hours (10 p.m. to 7 a.m.), which may not be protective of sensitive uses in the early morning and evening. Should more restrictive hours be applied?
      - ~ Day restrictions. Some noisy activities (e.g., construction) are prohibited in some jurisdictions on some days of the week (e.g., Sundays and holidays). Should similar restrictions be considered for ORV sounds?
    - Participant feedback.
      - ~ A. Time/Day: Daytime won't work-mostly weekend
      - ~ B. 10.7 should apply to weekends too
      - ~ C. Hour but not day
      - ~ D. More time rest. W/day, less on weekends
      - ~ E. No change
      - ~ F. Ok if residential, no restrictions at riding areas.

- Question (controlling ORV sound that reaches neighboring properties): Should we consider enforcement options?
  - Choices.
    - ~ Current rules, when enforced, are mostly applied only in response to complaints. Should there be a more active noise compliance education and/or enforcement program?
    - ~ Instead of leaving enforcement to the police or sheriff, should there be specific noise enforcement personnel?
    - ~ Instead of leaving education to the police or sheriff, should there be specific noise education personnel?
  - Participant feedback.
    - ~ Existing law enforcement officers should have the tools they need “dB meter”-No noise police
    - ~ No to all-What’s happening now is ok.
    - ~ Yes to more active current RCW 105dBA but would need more ed. and enforcement if lower dBA.
    - ~ Jessie-could be specific enforcement officers or add to ORV offices ranks in general-more education
    - ~ DNR has the equip. and several officers—Officer may live too far away-more enforcement and education Needed generally.
    - ~ Should be more education. And a place to go to get tested, get info, etc. Noise does need to be lower. Enforcement on their own, meters should be readily available to the riders but starts w/ manufacturers plus enforcement.
    - ~ Comes from educating people, manufacturers and aftermarket should say “Quiet down”. So the new marketing message should be “Quiet is Cool.”
    - ~ Enforcement Personnel- not in residential areas; already pay for offices in DNR/Forest Service.
- Question (controlling ORV sound that reaches neighboring properties): What about noise impact prevention options?
  - Should we:
    - ~ Have a minimum distance buffer requirement (for example, require an ORV track to be “x” feet from a property line)?
    - ~ Prohibit ORV use near certain land types?
    - ~ Create additional ORV riding opportunities in designated areas with compatible land uses?
  - Participant feedback.
    - ~ Distance is not valid, too subjective-not right to stop use on private land.
    - ~ Need for new areas is drastic
    - ~ Min. dist. Buffer-it’s not the distance it’s the complaints.
    - ~ Use on public land is already in place
    - ~ YES to new areas.
    - ~ Distance buffer is a component. But the source of the noise is more important.
    - ~ Some land types don’t work but there is a strong need for new opportunities.
    - ~ Min. distance not a factor-agrees with source is the issue-agrees definitely need new areas.
    - ~ Some of the new ORV money could be used for noise E&E
    - ~ Distance does not work-Its the source
    - ~ Some areas already covered by the law.
    - ~ Yes to new areas to ride.
    - ~ Distance does not work-its the source. Pierce Co. has min. distances, can’t ride on less than 5 acres.
    - ~ Don’t pass a law that limits the “CC’s” –Needs to come from mfg. & aftermarket.
    - ~ Let the marketing message be “Loud does not equal power”.
    - ~ Yes to new riding areas.
- Question (source control options): Should the current ORV sound limit be reduced? Existing noise limit (105 dBA @ 20 inches from the tailpipe) is higher than all other states; should it be lowered to a level similar to other states (96 dBA)?

- Participant feedback.
  - ~ No =2
  - ~ Yes =3
  - ~ Yes, “but” 1 (not 96)
- Question (source control options): Whether or not the sound level is reduced, how should Washington’s ORV noise limit be enforced?
  - Choices.
    - ~ Encourage self regulation via a stepped-up education program
    - ~ Point of original sale of vehicle
    - ~ Point of (prior to) resale
    - ~ Require an annual certification, for example at retail or repair outlets, trailheads, tracks, etc.
  - Participant feedback.
    - ~ How enforced?
    - ~ Outlaw the loud pipes-monitoring, no need for annual cert.- test ourselves especially at events.

7. **Wrap-up** (Greg Lovelady).

- a. Results of tonight’s meeting will be posted on IAC’s website ([www.iac.wa.gov](http://www.iac.wa.gov)).
- b. Next week a link to the questionnaire used tonight will be available for people unable to attend (or for attendees who would like to add to the discussion).
- c. Tonight’s sign-in pages will be used to help assemble a listing of people who wish to be placed on IAC’s “ORV Noise Solutions” mailing list. (Interested parties may also get on the list by contacting IAC—Amie Fowler, 360/902-3086, [AmieF@iac.wa.gov](mailto:AmieF@iac.wa.gov).)
- d. A draft of final report to the legislature will be made available for comment, probably in November or December 2006.

**Hal Holmes Center, Ellensburg, 7 pm, 10/19/06** (about 29 persons)

1. **Welcome**, introductions, about the Interagency Committee for Outdoor Recreation (IAC), our task, work finished to date (Greg Lovelady)
  - a. Introductions of the team present: ESA Adolfson (Mark Johnson, Jackie Dingfelder), Geomatrix (Kevin Warner), IAC (Greg Lovelady, Jim Eychaner).
  - b. “IAC” is the state agency charged by the legislature with completing this ORV noise solutions project. Most know IAC as the state’s principal provider of grants for recreation and habitat conservation, though we are often asked to carry out other assignments.
  - c. Legislature directed IAC to provide recommendations for addressing “*excessive noise from ORVs.*” Specifically asked to: review laws, provide recommendations on equipment for enforcement, model ordinances, education, and a grant program.
  - d. We are here to get your ideas-feedback. We need more than a “show of hands” telling us *who is in favor* and *who is against* different ideas - we need to know *why you hold your opinions*. This is your chance to explain why your solution is the best answer. If we work together on this, the legislature is ultimately going to make the right decision.
  - e. How we arrived to this point: Legislative ORV Noise Task Force meetings (2005); Legislative hearings leading to ESSB 6384 directive to IAC, formation of seven person advisory committee and selection of Adolfson-Geomatrix to help draft the report to the legislature, website, press releases, email announcement, two workshops (2006).
2. **Workshop Overview** (Jackie Dingfelder, ESA-Adolfson). Jackie reviewed the workshop agenda and the ground rules for participation (respect, etc.) listed on the back of each agenda. She then introduced the next speaker for a review of common noise control options.
3. **Options** (Kevin Warner, Geomatrix, Acoustical specialist).
  - a. Described types of work done by Geomatrix. The firm is impartial, has worked on both sides of the “noise fence”. We are all here to work on developing recommendations, options.
  - b. See the three display boards he brought: the ORV noise law, how loud are ORVs, how the WAC noise rule works.

- c. Two basic approaches: One addresses noise emitted from ORVs, the other addresses noise received at a private property line. Washington has laws addressing both approaches.
  - Noise from the source (the vehicle; see handouts). Every 10 dBA change in sound means a 100 percent change in loudness. For example, 95 dBA is half as loud as 105 dBA. Most states with noise laws have a 96 dBA limit. Washington’s limit of 105 dBA is very loud.
    - Washington’s limit is 105 dBA at 20 inches from exhaust (highest in nation). Lowering this would be a major contributor to addressing the issue (see handout or display board). Ninety-six dBA as a new limit has been discussed.
    - How should such noise be enforced? For example, at point of original sale or resale or a periodic certification program. Restricting after-market products that defeat current laws would be another way.
  - Sound received at property lines. Since early 1970s this law has existed. It has features such as: sounds may exceed the limit for specified periods of time and daytime limits are higher than nighttime limits.
- d. Many jurisdictions (local) generally use one of these approaches. Discussed various approaches to controlling noise:
  - “Time weighted” limits (see handouts) as examples: disallow exceeding certain limits based on the time of day and/or disallow based on the day (for example, weekends and holidays). Might this approach work?
  - Possibility of stepped up education programs and/or more enforcement. Mentioned an issue related to enforcement: may be difficult to find a qualified officer to respond.
  - Create minimum distance buffers (for example, not permitted to ride within “x” feet of a property line).
  - Perhaps outlaw ORV activities in certain land use zones (for example, residential).
  - Perhaps create more places to ride to reduce the need to ride where noise disturbs others.

**4. Audience questions, comments**

- a. Audience member #1: where would a car be in the scale shown on the board? [Kevin: would probably be under 96 dBA.]
- b. Audience member #2: Why only two workshops in the entire state? [Greg: the basis for the workshop is a questionnaire that participants will be asked to complete. While there is value in attending the workshop, there is also value in completing the questionnaire which is now widely available on-line and in hardcopy.]
- c. Audience member #3: Is there a sound meter available tonight? [Kevin: no, we did not bring one.]
- d. Audience member #4: Your handout says that excessive sound can cause hearing damage – how long would that be? Also, how much sound will a typical house attenuate. [Kevin: is not a medical expert, but would probably be dependent on the individual and the characteristics of the sound. Also, a house would probably attenuate about 30 dBA of noise.]
- e. Audience member #6: Difference between 2 stroke and 4 stroke; as they get further away, the 2 stroke remains louder. [Kevin: this is a sound frequency issue; lower frequencies travel further.]

**5. Small Group Breakout Session (Jackie).** Jackie explained that this portion of the agenda is designed to solicit direct input from the audience on recommended options for dealing with ORV noise and that each group would be assigned to respond to six questions (same questions for each group). After an hour, a representative from each group would report back on the results of their group’s discussion-responses to the six questions. She asked audience participants to “count off” until three breakout groups were identified. Each group agreed on a note-taker and someone to report back at the end of the session. For approximately an hour, the groups worked through the questionnaire.

**6. Group reports summary** (from flip charts; groups reported in reverse order, #3 went first):

- a. Group #3: (began with page 1 of questionnaire; Zach.)
  - Question (should current level be reduced?): Most supported this; many did not.
  - Question (how should noise law be enforced?): None of options noted in the questionnaire will work (most thought this). Field checking is difficult; officers have more important things to do.
  - Question (prohibit aftermarket products): It’s too easy to order products on-line; doing measurements at trailhead would be OK.
  - Question #4 (time of day, etc.): A blanket law won’t work. The 10 pm- 7 am law might work. No to day of week restrictions.
  - Questions #5 (hire noise cops = no). Focus on existing officers and give them the necessary tools.

- Question: Existing uses should be grandfathered-in; if houses come later, too bad.
  - “X” feet from property line won’t work outside of city limits.
  - Need more enforcement to get “bad seeds” out.
- b. Group #2 (started on page 2, question 4)
- Whatever is done, keep it simple for ease of enforcement.
  - Noise between 10 p and 7 a is not a problem; no solution needed.
  - Restrict riding on weekends and holidays = no.
  - #5, enforcement options: blanket regulations won’t work. Should be area specific because some areas don’t have neighbors.
  - (b) No on noise cops. We already have the necessary staffing to do this.
  - If adjacent property owners don’t have a problem with the noise, then the blanket regulation wouldn’t help.
  - It’s more important to control sound at the machine, not property line.
  - 105 dBA limit:
    - Do not reduce from 105 dBA (4 people) because peer pressure is working and shouldn’t change law for a few complainers.
    - Yes, do reduce from 105 (6 people).
  - Riders should not have to quiet older machines.
  - Just enforce the current law.
  - If we have to pick an option, go for education.
- c. Group #1 (Mark Johnson).
- Q. #1, Sherri re. the 50 foot drive-by noise test. Depending how administered, different readings may result, difficult to repeat results. Has to do with a standard advocated by Motorcycle Industry Council. Northwest Motorcycle Association supports the 1287 test because it is repeatable.
  - Lower the existing sound limit: most say no because it’s unfair to pick on ORV, is more of an enforcement issue. Some support lowering to 96 dBA, it’s reasonable; most bikes already meet this and it is the national limit.
  - How to enforce the law: self regulation is OK, most people will do the right thing. Yes to education. Added complexity is that riders don’t know how loud their bikes are. However, it is a respect thing; work it out with your neighbors. Local control is preferred; treat like any other source of noise.
  - Lowering it would just be another way for neighbors to complain.
  - Question #3: restricting aftermarket products won’t work; people should buy whatever they want; too hard to regulate; riders will modify their bikes anyway.
  - Aftermarket products perform differently on different machines.
  - #4: don’t discriminate against ORVs. Local determination is critical. Things are different in cities versus more rural areas. People work different hours.
  - Question #5: In Kittitas Co. there is no need for a noise cop. It is very rural and there have been few or no complaints.
  - Question #6: Yes to more riding opportunities.
7. **Wrap-up** (Greg Lovelady).
- a. Results of tonight’s meeting will be posted on IAC’s website ([www.iac.wa.gov](http://www.iac.wa.gov)).
  - b. Tonight’s sign-in pages will be added to IAC’s “ORV Noise Solutions” mailing list. (Interested parties may also get on the list by contacting IAC—Amie Fowler, 360/902-3086, [AmieF@iac.wa.gov](mailto:AmieF@iac.wa.gov).)

A draft of final report to the legislature will be made available for comment, probably in November or December 2006.



**Appendix H – Legislative Directive For the ORV  
Noise Study - Recommendations**

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Noise Study - Recommendations**

**Chapter 371, Laws of 2006, Section 170**

**Sec. 170.** 2005 c 488 s 401 (uncodified) is amended to read as follows:

**FOR THE INTERAGENCY COMMITTEE FOR OUTDOOR RECREATION**

Nonhighway and Off-Road Vehicle Program (NOVA) (06-4-004)

The appropriation in this section is subject to the following conditions and limitations: \$100,000 of the appropriation is for the following studies:

(1) *[This section is not applicable to the ORV noise study.]*

(2) The committee shall recommend a program for enhanced education and enforcement regarding excessive noise from off-road vehicles. The study shall include a review of relevant existing laws and regulations. The recommendations shall address the appropriate equipment needed for enforcement, model ordinances, enhanced educational strategies, and a proposed grant program to assist local governments to more effectively reduce the impact of excessive ORV noise in rural residential neighborhoods and nonresidential areas, including consideration of grant programs for planning departments, code enforcement departments, health departments, or other entities of local government.