



Oregon

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Suzanne Lewis, Superintendent
United States Department of the Interior
National Park Service
PO Box 168
Yellowstone National Park
Wyoming 82190

Dear Ms. Lewis,

I am writing to you on behalf of the Technical Advisory Committee (TAC), which is in charge of providing guidance and direction to the Western Transportation Institute (WTI) in their research study on Animal-Vehicle Collision Mitigation Using Advanced Technologies. This group is presently comprised of representatives from 11 state departments of transportation and the Federal Highway Administration, which are contributing funds for this study. Oregon is the lead state, having sponsored the pooled fund research project. The TAC is responsible for evaluating WTI's work and making informed decisions regarding the project, based on WTI's reports and presentations.

The original 15 states contributing to this Pooled Fund Study include Alaska, California, Iowa, Indiana, Kansas, Maryland, Montana, North Dakota, New Hampshire, Nevada, New York, Oregon, Pennsylvania, Wisconsin and Wyoming. Their contributions total \$945,000. An additional \$120,000 from WTI makes a total of \$1,065,000 invested so far in the study. This amount does not reflect any funds you have expended for park representatives to attend meetings or supervise the installation of the system. As a representative of the Oregon DOT and the TAC, I would like to kindly request that you reconsider your decision to have the system removed from Yellowstone National Park property and allow the research project to continue in its present location for up to 3 more years.

Although I am relatively new to the project, I understand that there have been situations that have compromised the credibility of the project and problems that were not properly addressed in a timely manner. I offer you and your staff my most sincere apology and assure you that, as long as Oregon is the lead state in this project and I am the Oregon representative, I will do everything within my capacity to prevent a recurrence of such problems in the future.

As you probably know Alisa Babler (KSDOT), Bill Branch (MDDOT) and I had a telephone conference with John Varley, Christy Hendrix and Tom Ollif on July 21, 2005 to discuss some of the issues related to the project. I want to compliment you on your staff. John, Christy and Tom, who took the time to have the telephone conference about this issue, are excellent spokespersons for the park. They were very professional, courteous, and understanding in listening to our concerns and explaining their views about the system. In fact, it is on the advice of Mr. Varley that I am writing this letter to you to inform you of the main points raised during the conference call. I will try to be brief in addressing the concerns that John, Christy and Tom expressed on the call but before that, please allow me to address some of the questions raised in your letter to WTI.

In your letter to Steve Albert on May 31, 2005, you request to have the animal detection system removed from Yellowstone National Park property. You make reference to a comment made at the TAC Meeting in December 2004 that "animal detection systems are not an off-the-shelf technology." This statement is clearly true. However, this is precisely the focus of the research: Can such technology be made reliable after a careful and systematic analysis so that it can be used anywhere in the country by any government entity in order to stop, or at least reduce, the 1 million deer-vehicle collisions that occur annually? If WTI or the TAC indicated, intentionally or unintentionally, that this was a reliably proven technology, they made a mistake and I sincerely apologize for that.

The concept of the research was to utilize high tech sensors, radio communication devices, solar powered energy panels, batteries, signs, warning amber flashing beacons, etc. to see if they can provide an efficient, reliable and trustworthy system that could be used as an animal detection and driver warning system.

You also mention that the system isn't consistently reliable in warning drivers of animals on the roadway. Prior to December 2004 the system was still under development and no tests had been performed, other than those used in the debugging of the software and testing the compatibility of the hardware. It was not until after that date that the system was functional enough to test the reliability of it; however, the driver warning system has only been activated for 36 days between December 2004 and January 2005. In other words, the driver warning sign has not been activated long enough to be tested and evaluated to determine its effectiveness in altering driver behavior. This is precisely one of the main reasons why we are requesting your assistance in the continuation of the project: To determine if a reliable animal detection system can influence motorist behavior to the point that they will take precautions in case an animal is present on the roadway. We need to find out if the system is indeed effective.

The reliability, on the other hand, can be evaluated and judged since it has been given enough time to allow sufficient data collection. Please consider the following statistics. Researchers collected reliability data from January 27 to 31 and from February 26 to March 5. The analysis showed that 55% of all detections were clearly related to animal crossings with a 5% of all detections related to errors. 29% of the detections were classified as "unclear", however, does not necessarily mean that they were false detections. It means that something triggered the system and researchers could not identify what caused it. They also compared the data saved by the system to snow tracking data. They recorded tracks of medium (e.g. coyote) and large mammals (e.g. elk) approaching and leaving the road once every 24 hrs. After recording the data the tracks were erased.

In addition to animals crossing the road they also found that animals (e.g. elk, wolf) sometimes moved parallel to the road in the path of a detection beam. Based on interpretation of the detection data alone, these detections would have been classified as "unclear". They recorded 53 Elk, 14 Coyote and 1 Wolf crossings. 72% of all elk crossings could be related to a "clear animal crossing" in the detection data. Of all "clear animal crossings" in the detection data, 80% could be related to animal snow tracks (elk, coyote or wolf). Based on these statistics the TAC feels that the system is ready to produce a long-term body of data to be evaluated, which in turn will determine if animal detection systems are an alternative that is reliable, safe and cost effective.

The blind spots that you refer to are a design problem that can be easily corrected. The blind spot in zone B can be corrected by adding another set of sensors at a lower elevation to the existing poles. The blind spot in zone 8 can be corrected by placing one additional station at the bottom of the slope which would cut zone 8 in two sections. As you can see, no major work or alterations are needed to correct the blind spots problem.

Regarding your concerns about equipment problems, Kevin Bruski with the Montana Department of Transportation has indicated that MDT would take responsibility of maintaining the system so you would have someone locally to contact in the event of a problem. Furthermore, we plan to make specific requests to the equipment vendor that he make someone available who can be contacted at any time. I am also available to contact in case the park has any issues with the vendor or anyone else.

In reference to the reviews of recent publications that suggest that animal detection systems may not be very effective at changing motorist behavior or reducing speeds, it comes as no surprise to me because after all, motorists have the choice to pay attention or to ignore a warning sign. Ultimately, the decision to alter their driving behavior lies solely in their freedom to choose. However, are the publications you make reference to stating an opinion or do they have the scientific data to back it up? This is precisely one of the reasons why we need to continue the project. Once all the data has been collected and analyzed, then we can make a statement in favor or against the effectiveness of animal detection systems because we will have the information to prove it.

Now, please allow me to try to answer the concerns expressed by John, Christy and Tom during the conference call. I will list the questions with their respective answers as they were presented to us by them.

What criteria are used for system reliability? (Including detection and downtime)

Please refer to paragraph 4 of page 2 above. In regards to downtime, the TAC is not particularly happy when the system is down so we plan to add a clause to the contract that says that if the system is down for one month out of the year and there is no external reason (like a car running into the master station), then the study will be terminated.

Liability of systems (specifically in relation with reliability)

There is a sign on each end of the test section that specifically warns the motorists that they are entering a test section. I am not an attorney but I believe that this sign reduces the liability from any entities involved in the study.

What will be done to fix the problems with the system?

The following steps will be taken to correct the problems:

1. The blind spots will be corrected as explained in paragraph 2 of page 3 above.
2. Brackets will be replaced with a material that is resistant to temperature fluctuations
3. The master station will be relocated for better communication with the other stations
4. The current manual download method will be replaced with a remote access by satellite download.

What will the next one to two years of research be like? What is the plan to get this project to the end?

The adjustments outlined in the previous question will take about 9 weeks. WTI and the product manufacturer will be in the area to perform the work. After the 9 weeks, MDT will take ownership of the system. All questions and comments will go to MDT and of course, I will be here just in case. After that, there will be a 2 month cumulative site presence of a graduate student per year. All the data will be remotely downloaded via satellite.

What are the benchmarks for the removal of the system? Criteria if it is not working to determine its removal.

As I mentioned before, if one month goes by while the system is down, then the TAC will implement plans to remove the system and to terminate the project.

What is the Exit strategy for the study and the system?

The TAC will meet every year to evaluate the reliability of the system and to decide on the continuation of the study. If the system is working smoothly and the data is of value, then we continue for another year. On the other hand, if the system does not perform as expected or if the data is inconclusive then we recommend that the PI prepare the final report, we make a decision on the future of the system and end the project. If it happened that in two years the system is flawless and we collect all the data necessary to make a serious evaluation of the system to render it reliable in all aspects, then I don't see why we would need to continue for a third year.

Who is in charge? If it goes down, who fixes it? How long? Other responsibilities and contact information?

Once all the adjustments have taken place after the initial 9 weeks, MDT will take ownership and they will be responsible for maintaining it. They will designate someone as a contact person, probably Kevin Bruski, who in turn will deal with the vendor for any repairs. Alisa Babler from Kansas DOT, Bill Branch from Maryland DOT and I will also be available if the need arises.

There is a need for someone local that specializes in the equipment so that Lloyd Salsman (STS, Inc.) from AZ doesn't take two months to get to Montana.

YES, absolutely. We will ask the manufacturer to train someone from MDT to perform the basic troubleshooting until a specialized tech arrives from the manufacturer location.

As you can see, we are trying to cover all the possibilities. I know that there are so many variables that it is very likely that an unexpected event will occur at some point. When that happens I want you to rest assured that we will

work diligently to solve the problem. I will be in touch with MDT, WTI, Alisa and Bill on a monthly basis to stay informed of any thing that happens at the site.

We are requesting that you will once again give us an opportunity to try to accomplish something for the benefit of the traveling public and for the benefit of the animal community. If you agree with the extension of the research, there is a great potential that in the near future we will have a product that may save human lives as well as the lives of countless animals that venture onto our roadways. It is also true that we could find out that all the effort and time we put into the project did not give us a safe, reliable, or effective product; but if we don't follow the ongoing project to conclusion we will never know. The final phase of this project is necessary to go to the heart of the problem: given a reliable system of detecting large animal presence within a highway right of way, will activation of a driver warning devise be sufficient to alter driver behavior in a way that avoids a potential collision? The TAC is asking for addition research time to answer this question

On the other hand if the system is removed now, the time, effort, and money invested so far will be wasted because we can't draw any conclusions from what we have done to this point. In addition, I have a feeling that due to the history of the project, the chance of putting together another pooled fund study to research this type of problem will be greatly reduced. The TAC committee and the Federal Highway Administration value the partnership that we have had with the National Park Service and sincerely hope that our partnership continues. We will certainly be more diligent in addressing any new or continuing concerns that may arise. Nonetheless, the TAC will respect your decision. We trust that you will make the right choice.

Please feel free to contact me at any time should you have any questions or comments. My information is below:

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Respectfully,



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Enclosure

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Animal-Vehicle Crash Mitigation Using Advance Technology Project TAC