# The Wall Journal™

THE INTERNATIONAL JOURNAL OF TRANSPORTATION RELATED ENVIRONMENTAL ISSUES

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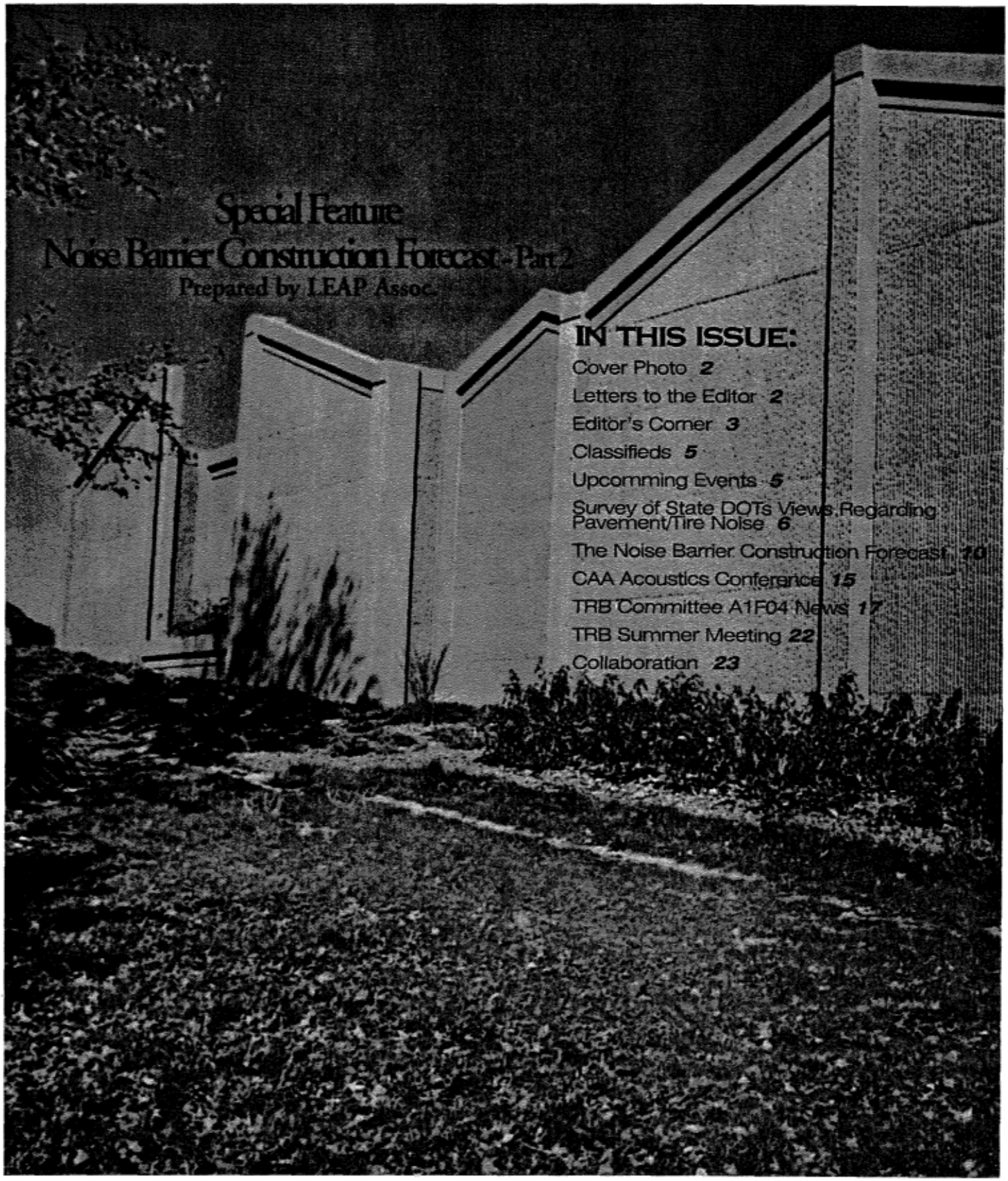
42
January to May
2001



## Special Feature
## Noise Barrier Construction Forecast - Part 2
Prepared by LEAP Assoc.

**IN THIS ISSUE:**

## Cover Photo

**Location:** Interstates 76 and 295 Camden/Cherry Hill areas, New Jersey
**Owner:** State of New Jersey, Department of Transportation
**Architect:** Gannet-Fleming, Inc., Camp Hill, Pennsylvania
**Design Engineers:** Buchart-Horn, Inc. & BASCO Associates York, Pennsylvania
**Material Supplier:** Concrete Safety Systems Bethel, Pennsylvania
**General Contractor:** Driscoll Construction Company Spring House, Pennsylvania

**COLOR PRODUCT APPLICATION:**

**Building Material:** Concrete panels and posts with integral color
**Color Specification:** To specify Bayferrox ® see Sweets, Architects' First Source, and www.BayerUS.com/pigments

*FULL STORY IN OUR NEXT ISSUE*

## LETTERS TO THE EDITOR

**Dear Soren,**

You may or may not remember me, but I've represented Bayer Corporation at your various meetings. Because of organizational changes, I'll no longer be able to continue my membership and the "friends" status on the TRB Committee. I'm now selling BayScape colorant to the wood and rubber mulch industry. BayScape is made from the same Bayferrox Bayer makes for the construction industry that uses this pigment to color concrete noise barriers - among other things. Here's the web site: www.BayScapeColors.com Bayer, I believe, is also represented by Paul Croushore.

Soren, I want you to know it's been a great personal and professional satisfaction to work with you and the TRB. I've learned a lot, and enjoyed the company of the other members. Please extend my good-byes to everyone.

I wish you health, happiness, and continued success.

Kriem Michel
Bayer Corporation
5 N Jasper Avenue
Margate NJ 08402
Tel:609-823-1010
Fax:609-823-8802

**Mr. Soren Pedersen:**

A copy of your Nov/Dec issue was passed around our office, and I read the article on Page 9 about how the gauge of railroad track came about.

*Continued on page 5*

# The Wall Journal

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For subscription and advertising inforamation, see Page 16.


## THE EDITOR'S CORNER by Soren Pedersen

On more than one occation, I have been reminded that I neglected to note in the last issue, the efforts of one of the organizers of the 2000 TRB A1F04 Summer meeting in New York City. That person was Matt Murrillo, of Lewis Goodfriend and Associates. His selfless efforts to ensure top-notch, quality presentations were quit evident during the sessions and were well appreciated and recognized by all.

More good news, Matt has volunteered to organize the presentation sessions again for this years summer meeting in New Orleans. Thank you Matt for all your efforts. They will not go unnoticed.

For more details on the meeting, see the TRB A1F04 News item on page 22 or visit The Wall Journal website at: www.thewalljournal.com for complete program details and registration forms.

Progress on expanding the information on The Wall Journal website has taken major leaps in the last few weeks. The list of back issues and articles has been updated with, at least one article from each issue available for downloading. In addition more details are available on upcoming events.

Make sure you visit the site on a regular basis to catch all the new developments. Also, to participate in the Transportation Noise Forum which can be accessed through the "link" page. Also included in the links is FHWA Traffic Noise Barrier Design Handbook.

Unfortunately, we are running late with the issues this year. As a result, this issue combines what should have been the Januray/February 2001 the March/April 2001 and part of the May/June 2001 issues. This does not affect your subscriptions nor any advertising agreements. Both are based on issue numbers rather than length of time. Barring any unforseen problems, we should be back on track by the July/August Issue (Issue 44)

Matt Murillo, VP of Lewis S. Goodfriend and Associates has volunteered to organize the presentations for the 2001 TRB A1F04 Summer Meeting to be held in New Orleans

## Experts?

None of our men are "experts." We have most unfortunately found it necessary to get rid of a man as soon as he thinks himself an expert because no one ever considers himself expert if he really knows his job. A man who knows a job sees so much more to be done than he has done, that he is always pressing forward and never gives up an instant of thought to how good and how efficient he is. Thinking always ahead, thinking always of trying to do more, brings a state of mind in which nothing is impossible. The moment one gets into the "expert" state of mind a great number of things become impossible.

*-Henry Ford Sr.*

## Letters to the Editor

*Continued from page 2*

A couple of things you may find interesting:

First, the Solid Rocket Boosters on the Space Shuttle are a bit over 10 feet in diameter, not "just a little wider" than railroad track gauge, although clearances through tunnels probably does have an impact on how big they are. Clearance from the centerline is typically 8-1/2 feet, although most rolling stock is around 10 feet wide.

Which brings us to the second thing: Why are they balancing a machine weighing 420,000 pounds and 10 feet wide on a platform only 5 feet wide? Actually, many different gauges have been tried: 2 foot, 2-1/2 foot, three foot, meter, 3-1/2 foot, and 6 foot come to min. The American South had a different gauge than the North during the Civil War -- they changed over on one weekend. A bad train wreck took place because one railroad had a track gauge 1/2 inch different from the car that was using it.

Turns out the five foot center-to-center of the rails is the best compromise between cheap construction (narrower track, cheaper to build) and carrying capacity of the trains. "If it's stupid but works, it isn't stupid"

Oh -- and the reason that they used the same distance between the wheels of the old English wagons was not, I've heard, because they were using the same jigs. I understand that they were using the wagons themselves as the first rolling stock.

Really enjoyed the magazine. Keep up the fine work.

Chas. H. Hague, PE, SE
Railroad Structural Engineer
Alfred Beseech & Co.

**Visit us on-line at**
**WWW.THEWALLJOURNAL.COM**
Join in the Noise Discussion Forum
Access the FHWA Highway Noise Barrier Design Handbook

Canada Post Agreements
*USA Surface Incentive Lettermail Agreement Number* ***1862820***
*Publication Agreement Number:* ***04598989***

# Classified Advertisements

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•1429 E. Thousand Oaks Blvd.,
Thousand Oaks, CA 91362
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**Bowlby & Associates, Inc.**
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**FHWA TNM Training**
504 Autumn Springs Court, # 11,
Franklin, Tennessee 37067-8278
Tel: (615) 771-3006 Fax: (603) 676-2219
www.bowlbyassociates.com

**Lewis S. Goodfriend & Associates**
**CONSULTING ENGINEERS IN ACOUSTICS**
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Whippany, NJ 07981
Tel: 973-560-0090 Fax: 973-560-1270
e-mail: info@lsga.com

## Manufacturers

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Don't just reflect noise, absorb it with
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Austin, Texas 78746
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www.soundsorb.com

**Durisol Inc.**
67 Frid Street,
Hamilton, Ontario, Canada L8P 4M3
Telephone: 905-521-0999
Fax: 905-521-8658
www.durisol.com

"GREEN" - Retaining/Sound Wall System
EVERGREEN WALL SYSTEM N.A.
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•EVERGREEN-MACRO 5'-45'
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# Upcoming Events

**August 28-30, 2001**
*INTER-NOISE 2001,*
The Hague, The Netherlands.
Contact
e-mail: secretary@internoise2001.tudelft.nl

**September 2-7, 2001**
*17th International Congress on Acoustics,*
Rome, Italy.
Contact: Fax: +39 06 4424 0183;

**October 1-3, 2001**
*Canadian Acoustical Assoc. Meeting*
Alliston, Ontario, Canada.
Contact 905 660-2444

October 7-12, 2001
*FHWA TNM 1.1 Training Course*
Franklin, Tennessee, USA.
Course conducted by Bowlby & Associates, Inc.
Contact: 615.771.3006 or Fax: 603.676.2219:
e-mail: pbowlby@bowlbyassociates.com

October 29-31, 2001
*NOISE-CON 01,*
Portland, Maine, USA.
Contact: 914 462-4006 or Fax: 914 462-4006.

January 13-17, 2002
*81th Transportation Research Board Annual Meeting,*
Washington, D.C. USA.
Contact: 202 334-2934 or Fax: 202 334-2003

*If you have an event you would like to have listed here, please contact us for details.*

# A Survey of State DOTs Views Regarding Pavement/Tire Noise


*by:* ***Roger L. Wayson,***
*Associate Professor;*

*University of Central Florida,*
*Civil & Environmental Engineering;*
*P.O. Box 162450;*
*Orlando, Florida 32816-2450;*
*tel: 407 823-2480;*
*fax: 407 823-3315;*
*email: wayson@pegasus.cc.ucf.edu*



## Abstract.

Noise caused by the interaction of the pavement surface and motor vehicle tires is an area that has seen recent increased interest in the United States. There is substantial proof in the literature that changes in pavement type and surface texture can reduce sound levels for highway neighbors., In general, reported reductions in sound levels in Europe seem to be greater than those achieved in the United States for certain pavement conditions. This conflict in results has sparked many state departments of transportation (DOTs) to invest research dollars to further quantify both the benefits and deficits of using alternative pavement types or textures for noise reduction. However, even though the state DOTs represent one if not the major stakeholders of this noise abatement technique, coordination in research efforts between the states has been lacking.




This same conclusion was reached at a special session on pavement/tire noise organized by the Committee on Transportation Noise and Vibration (A1F04) at the Transportation Research Board Annual Meeting in January, 1999. At that time, a working group was formed to investigate research on pavement/tire noise. Table 1 lists the members of that working group. The first task of the working group was to survey the state DOTs in an effort to determine the relative importance of several key parameters dealing with such research. This paper analyzes these replies and reports on the results. The opinions stated in this work are those of the author and should not be considered the formal stance of the Transportation Research Board (TRB). Implications of these results are also discussed in light of a recent synthesis1 on the topic completed by the author.

## Methodology

In an effort to determine the overall consensus of the state DOTs a blind survey was mailed to each noise abatement officer of each state and Puerto Rico. After the listed deadline, using the postmarks on the envelopes to determine which states that had responded, telephone calls were made to all remaining states to try and encourage more participation. Thirty-six states, or approximately 70% of the states, replied. While the author would have preferred even more replies, a seventy percent sample rate of the entire population is still thought to indicate the overall trends quite well.

The survey consisted of eight questions. A complete copy of the survey is shown as Figure 1. It was intended to keep the survey short, simple and concentrate only on major issues. However, to avoid possible skewing of

*Continued on page 7*

*Continued from page 6*

the results multiple opportunities were also included for the respondents to write in comments.

Each response was tabulated and formatted in a commercially available spreadsheet. Care was taken to avoid input that would have skewed results. For example, if a question response did not comply with the requested format the replies were carefully reviewed and only entered if it increased the data base without skewing the results. In Question 4, if the categories were not properly ranked, the results could not be included in the final analysis without skewing the results. Fortunately, this occurred very infrequently. Due to omission or changing of data, not all categories always add to the number of respondents.

After all data was included and verified, overall analyses were performed and results plotted. In some cases the analysis was simply adding up responses in a category. In others, such as Question 4, trends were evaluated. The results of this analysis are presented in the next section of this report.

## Results

The results of each question are first explored and then conclusions based on overall trends are presented.

*Question 1.*

***Should pavement type be considered during noise abatement analysis for highway projects?***

The respondent was asked to answer simply YES or NO to this question. Twenty-three (23) respondents said yes while thirteen (13) replied no. This would tend to indicate by the margin of responses (72 % for) that the general consensus is that pavement type should be considered. Many comments were also submitted with the answer to this question. Many echoed the same ideas. Four major ideas groups were submitted and are: 1) a similar question on pavement texture should have also been included in the survey since this is also very important; 2) pavement changes should only be considered for noise abatement if reliable data is available; 3) the decrease in abatement effectiveness or changes of the acoustic generation mechanism with time must also be considered; and, 4) other mitigation methods should work with pavement selection.

*Question 2.*

***How much sound level reduction, in dB(A), would warrant changing pavement types?***

The requested response to this question was a number value. Supplied values ranged from 1 to 6 dB(A) of abatement or noise reduction required to warrant changing pavement types. The average was 3.9 dB(A). Figure 2 shows the frequency distribution. One respondent did list 20 dB(A) but stated the high value was given because in the respondent's opinion, use of pavement for noise reduction is never warranted. This extreme value was not used in the overall analysis.

*Question 3.*

***What is the greatest impediment in your state to using alternate pavement types for noise abatement?***

Respondents were asked to select from the following choices: Federal concurrence; State policy (written or unwritten); Cost; Maintenance; Reliable data on noise reduction; Safety concerns; or, Other. Figure 3 shows the frequency distribution of responses. While it would be risky to assume an exact ranking of all the categories some trends are apparent. Most apparent is that the lack of reliable data for noise reduction from pavement surfaces is the greatest impediment. The second tier of responses includes cost and maintenance with all other categories in a third tier when ranked in groups.

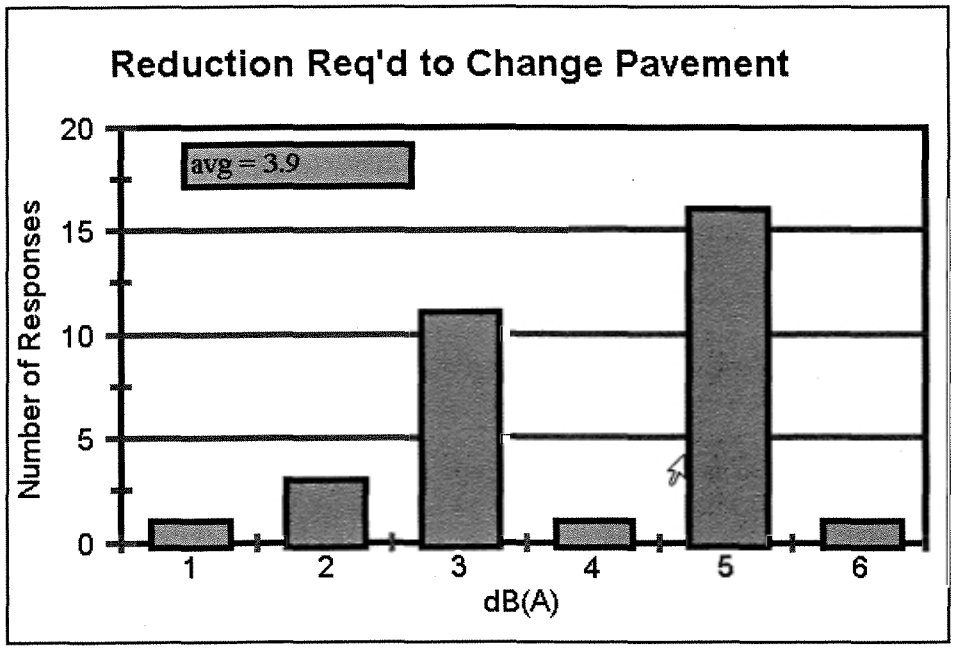


**Figure 2. Number of Responses**

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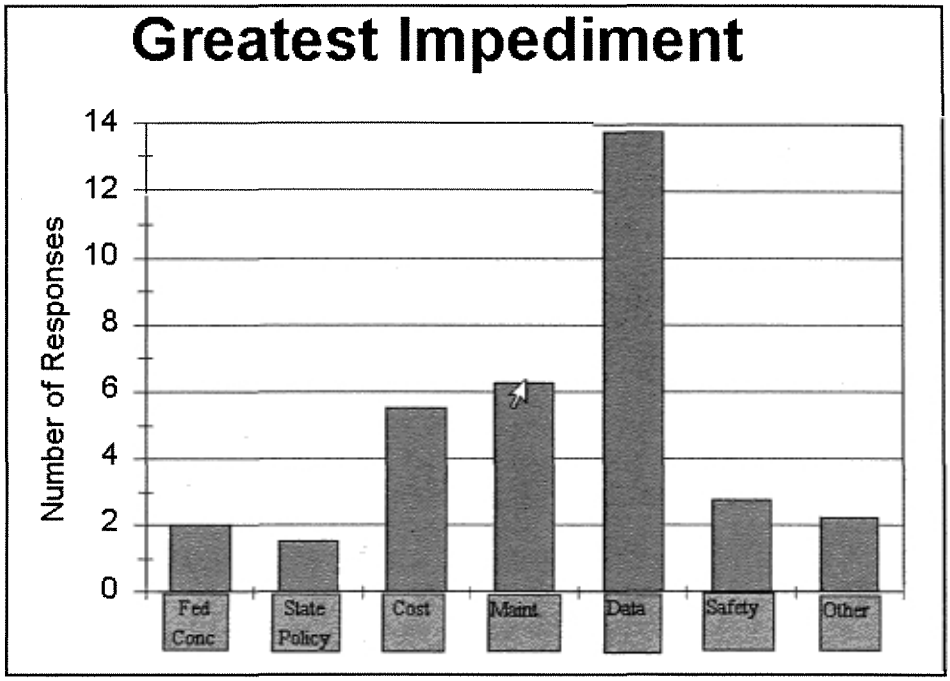



**Figure 3. The Greatest Impediment to Implementation**

*Question 4.*

***What is the greatest research need in your State regarding pavement / tire noise?***

For this question, the respondents were asked to rank the relative importance of twelve different categories of research needs with the number one (1) given to the greatest research need. An opportunity was also provided for comments on topics that may not have been included but important to a state. The list of provided categories included:

1. *Comparison of sound levels from common pavement surfaces.*
2. *Results of less common pavement surfaces (e.g., exposed aggregate).*
3. *Impacts due to tining.*
4. *Development of new pavement types (e.g., rubberized asphalt).*
5. *Comparison of trailer (close-proximity) and pass-by measurements.*
6. *Establishment of measurement method criteria.*
7. *Impacts on vehicle interior levels.*
8. *Development of Federal criteria and/or standards.*
9. *Impacts on sound levels caused by various tire types (e.g., studded tires).*
10. *Impacts on sound levels compared by vehicle types (e.g., automobile vs. heavy truck).*
11. *Safety considerations of alternate pavement types.*
12. *Maintenance and pavement service life of alternate pavement types.*
13. *Other: please specify*

It should be noted that the provided categories were not numbered as shown here to avoid potential bias in responses. However, numbers have been given to the responses in this



**Highway Noise Caused by Pavement/Tire Interaction**
**A Survey from Trb Committee A1f04**

I know. Another survey. But this one is important and we have tried to make it quick and relatively painless. We need your input. PLEASE RESPOND BY JULY 24, 1999 SO RESULTS MAY BE DISCUSSED AT THE TRB SUMMER MEETING OF A1F04.

1. Should pavement type be considered during noise abatement analysis for highway projects? __ Yes __ No
Comment:

2. How much sound level reduction, in dB(A), would warrant changing pavement types? __ dB(A) (please supply number).

3. What is the greatest impediment in your state to using alternate pavement types for noise abatement?
Choose one.
__ Federal concurrence.
__ State policy (written or unwritten).
__ Cost.
__ Maintenance.
__ Reliable data on noise reduction.
__ Safety concerns.
__ Other: please specify

4. What is the greatest research need in your State regarding pavement /tire noise? (Please rank from one (1) to eleven (11), with 1 being the greatest need.)
__ Comparison of sound levels from common pavement surfaces.
__ Results of less common pavement surfaces (e.g., exposed aggregate).
__ Impacts due to tining.
__ Development of new pavement types (e.g., rubberized asphalt).
__ Comparison of trailer (close-proximity) and pass-by measurements.
__ Establishment of measurement method criteria.
__ Impacts on vehicle interior levels.
__ Development of Federal criteria and/or standards.
__ Impacts on sound levels caused by various tire types (e.g., studded tires).
__ Impacts on sound levels compared by vehicle types (e.g., automobile vs. heavy truck).
__ Safety considerations of alternate pavement types.
__ Maintenance and pavement service life of alternate pavement types.
__ Other: please specify

5. In terms of other noise abatement research for highways, pavement / tire noise research is:
Choose one.
__ The most important.
__ Extremely important.
__ Moderately important.
__ Not very important.
__ Last on the list.

6. How should U.S. research efforts on pavement / tire noise be coordinated?
Check one.
__ Through TRB, A1F04.
__ Through FHWA.
__ Through University Centers.
__ Through national organizations (e.g., ANSI).
__ Through international organizations (e.g., ISO).
__ Other: please specify

7. What role should A1F04 take regarding pavement / tire noise research in the U.S.?
Check all that apply.
__ The lead support group.
__ Information clearinghouse.
__ Formal point of contact.
__ None.
__ Other: please specify

8. Do you have other comments or questions that you think should be discussed at the TRB, A1F04 summer meeting regarding pavement / tire noise?

Now that wasn't so bad was it? See return instructions on next page.

Please send your responses via mail, email, or fax.
FOR MAIL: Use the enclosed envelope or mail to:
Dr. Roger L. Wayson
Civil & Environmental Engineering
University of Central Florida
P.O. Box 162450
Orlando, FL 32816-2450
FOR EMAIL:
Send to: wayson@pegasus.cc.ucf.edu
FOR FAX:
Dr. Roger L. Wayson
University of Central Florida
407 823-3315

If you have any questions, you may also contact me (Roger Wayson) by phone at: 407 823-2480

Members of the TRB A1F04 working group on pavement tire noise.
Gregg Fleming, Volpe National Labs
Roger Wayson, University of Central Florida
Robert Bernhard, Purdue University
John Jaeckel, HNTB
Michael McNerney, University of Texas
Ken Polcak, Maryland State Highway Administration
Mike Staiano, Staiano Engineering, Inc.

*Continued on page 9*

*Continued from page 8*





paper to allow understanding of Figure 4. Figure 4 shows each listed category referenced by the corresponding number on the abscissa. Allowing the number 1 to be used as the best ranking allows individuals to understand the ranking process more easily. However, it does not assist in graphical representation. Accordingly, data formatting was used to better present the results. The ordinate of Figure 4 is a point score that was derived by adding all the scores by category to determine the maximum point total in each category. Adding one to this sum for each category so that no values of zero would occur, the actual values in each category were then subtracted from the maximum value. This left the number one need with the highest numeric value, etc., and allowed for a more representative presentation of the results.

A review of Figure 4 shows that in general, four categories of responses could be determined. Using this approach, in the first tier of research needs would be: comparisons of sound levels from common pavement surfaces, safety considerations of alternate pavement types, and maintenance and pavement service life of alternate pavement types (categories 1, 11 and 12, respectively). The second tier would consist of: establishment of measurement method criteria, development of Federal criteria and/or standards, and impacts on sound levels compared by vehicle types (e.g., automobile vs. heavy truck) (categories 6, 8 and 10 respectively). The third tier would include: results of less common pavement surfaces (e.g., exposed aggregate), impacts due to tining, development of new pavement types (e.g., rubberized asphalt) and impacts on sound levels caused by various tire types (e.g., studded tires) (categories 2, 3, 4 and 9, respectively). Finally the fourth tier would include: comparison of trailer (close-proximity) and pass-by measurements and impacts on vehicle interior levels (categories 5 and 7).

In reviewing these tiers of responses, it can be seen that the first tier reinforces the answers provided in Question 3 (first and second tier responses). As such, impediments to implementation and research needs mirror each other. It is also apparent that the lowest ranked need, as could be expected, was the sound inside the vehicle. Of interest were two repeated categories supplied in the "other" selection: cost and longevity.

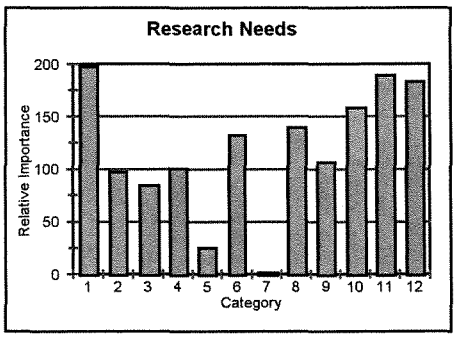



Figure 4. Research Area Needs

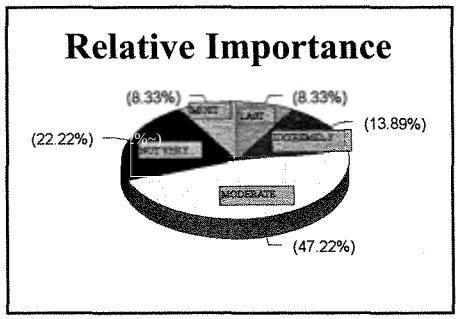



Figure 5. Relative Ranking of Pavement/Tire Noise Research

*Question 5.*

***In terms of other noise abatement research for highways, pavement / tire noise research is: The most important; Extremely important; Moderately important; Not very important; or, Last on the list.***

A selection of one of the provided category was requested on the survey. It can be seen from Figure 5 that about one-half of the state DOTs thought the research need for pavement/tire noise was moderate (the center category). All responses when "averaged" show this central tendency. It could be concluded then that on a national level the research is needed, but not considered the most important noise research need.

*Question 6.*

***How should U.S. research efforts on pavement / tire noise be coordinated?***

The respondents were asked to select one from the following categories: through TRB, A1F04; through FHWA; through University Centers;

*Continued on page 13*

# The Noise Barrier Construction Forecast

An updated look at potential noise barrier projects in the making. This survey was provided by LEAP Assoc. International of Florida, consultants to the precast concrete industry for projects in the transportation construction field.

*For further infomation, contact Cindy Thomas, LEAP Associates International 11602 N 51st St., Suite 100, Temple Terrance, FL 33617, Tel. 813 988-6870*

** Parts 3 will be published in the next issue. Part 1 was published in the Nov./Dec. 2000 issue (#40). The entire survey is available on The Wall Journal website at www.thewalljournal.com*

## 2000 Soundwall Activity Survey (PART 2 of 3*)

| State | District/ Region | Location | Bid Date | Cycle | Materils | H X L | Project Contact Info |
|---|---|---|---|---|---|---|---|
| IA | | -235 Des Moines IA | 2001 | Des. | Precast Concret Panels | 4.5m x 1.33km | Tony Gustafson, 800 Lincoln Way, Ames, IA 50010, P: 515-239-1430 |
| | | -235 Des Moines IA | 2001 | Des. | Precast Concret Panels | 4.5m x 333m | Tony Gustafson, 800 Lincoln Way, Ames, IA 50010, P: 515-239-1430 |
| | | -235 Des Moines IA | 2003 | Des. | Precast Concret Panels | 4.5m x 3.333km | Tony Gustafson, 800 Lincoln Way, Ames, IA 50010, P: 515-239-1430 |
| | | -235 Des Moines IA | 2004 | Des. | Precast Concret Panels | 4.5m x 2.00km | Tony Gustafson, 800 Lincoln Way, Ames, IA 50010, P: 515-239-1430 |
| | | -235 Des Moines IA | 2005 | Des. | Precast Concret Panels | 4.5m x 1.33km | Tony Gustafson, 800 Lincoln Way, Ames, IA 50010, P: 515-239-1430 |
| KS | Des. | No projects to bid, in Des. or PD&E | | | | | |
| KY | | 9-121.00 KY 11 (Bath/Montgomery) | 11-00 | Bid | Precast Concret Panels | 2 walls 6' x 20' each | Mr. Omohundro, PO Box 347, Flemingsburg, KY 41041 P: 606-845-2551 |
| | | | 10-00 | Bid | Precast Concret Panels | 12' x 3,108' | David Kratt, PO Box 37090, Louisville, KY 40233 P: 502-367-6411 |
| | | | 10-00 | Bid | Precast Concret Panels | 12' x 4,135' | David Kratt, PO Box 37090, Louisville, KY 40233 P: 502-367-6411 |
| | | | Unknown | Design | Unknown | Unknown | Bill Gulick, Div. Of Des., State Office Bldg, Frankfort, KY 40622 P:502-564-3280 |
| LA | Des | I-10 in New Orleans | 12-00 | Bid | Concrete | 22' x 2.2 miles | Jeff Burst, PO Box 94245, Baton Rouge, LA 70804-9245 P: 225-379-1356, F: 504-379-1351 or Rene Chopin at Burke Kleinpeter Inc. 504-486-5901 |
| | Des | I-10 & I-12 Baton Rouge | 10-00 | Des. | Concrete | 24' - 26' x 10 miles | Jeff Burst,PO Box 94245, Baton Rouge, LA 70804-9245 P: 504-379-1356, F: 504-379-1351 or Philip Meyers at GEC P: 225-612-3106 |
| | Des | Essen Lane Interchange | 10-02 | Des | Concrete | Unknown | Philip Meyers at GEC P: 225-612-3106 or Debbie Guest at LA DOT P: 775-379-1534 |
| | Des | Old Hammond Hwy, Baton Rouge Phase 1 | 10-01 | Des. | Concrete | 12' - 14' x 5 miles total for project | Jeff Burst,PO Box 94245, Baton Rouge, LA 70804-9245 P: 504-379-1356, F: 504-379-1351 or Jerome Lohmann at PEC P: 225-612-3106 |
| ME | Hwy Des. | No projects to bid, in Des. or PD&E | | | | | |
| | Turnpike | No projects to bid, in Des. or PD&E | | | | | |
| MD | Env. Des. | US-29 Howard County Columbia Hills | 12-00 | Des. | Concrete | 2,000LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Prince George's County Auth Village, Princeton/Andrews Manor | 9-00 | Des. | Concrete | 4,000LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Montgomery County Wildwood Manor | 10-00 | Des. | Concrete | 4,000LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Montgomery County Longwood, Bradley Manor, Barnett Rd. | 10-00 | Des. | Concrete | 8,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Montgomery County Forest Glen | 11-00 | Des. | Concrete | 1,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Montgomery County Park View Estates | 11-00 | Des. | Concrete | 1,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-495 Montgomery County Burning Tree Estates | 1-01 | Des. | Concrete | 6,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | US50 Anne Arundel County Riverview/Lindamoor | 4-01 | Des. | Concrete | 6,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | I-83 Baltimore County Longford North | 04-01 | Des. | Concrete | 3,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | US50 Prince George's County Princeton Sq. Ardmore | 05-01 | Des. | Concrete | 4,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |
| | Env. Des. | MD 695, Anne Arundel County Harris Heights Morris Hill | 09-00 | Des. | Concrete | 3,000 LF | Fred Eisen, Project Manager, 707 N. Calvert St., Baltimore, MD 21202 P: 410-545-8598 |

| State | District/ Region | Location | Bid Date | Cycle | Materils | H X L | Project Contact Info |
|---|---|---|---|---|---|---|---|
| MA | Env. Division | Wakefield/Quincy | Unknown | Bid | Concrete | 14' x 6000' | Michael Paienwonsky, 10 Park Plaza, Room 4260, Boston, MA 02116, P: 617-973-8245 |
| | Env. Division | Boston (Dorchester) | 2001 | PD&E | Concrete or Wood | 18' x 1000' | Michael Paienwonsky, 10 Park Plaza, Room 4260, Boston, MA 02116, P: 617-973-8245 |
| | Env. Division | Weymouth- Dukbury Rte. 3 | 2005-10 | PD&E | Concrete | Under Study | Michael Paienwonsky, 10 Park Plaza, Room 4260, Boston, MA 02116, P: 617-973-8245 |
| MI | Univ. | No projects to bid, in Des. or PD&E | | | | | |
| | North | M-6/US131 Interchange | Jan-05 | Des. | Unknown | 2m - 6m x 5184m | Mohamad Alghurabi P: 517-373-7674 |
| | North | M24 | Jan-03 | PD&E | Unknown | 3m - 4.5m x 205m | Geralyn Ayers P: 517-335-2635 |
| | Grand | No projects to bid, in Des. or PD&E | | | | | |
| | SW | I-94 in City of Kalamazoo | Jan-10 | PD&E | Unknown | Unknown | John Polasek, 1501 E. Kilgore Rd., Kalamazoo, MI 49001 |
| MN | Metro | Stage 1 TH100 Golden Valley Glenwood to Duluth | 3-00 | Bid | Blue Wood Laminate | 6m x 4068m | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| | Metro | Stage II Crystal TH100 Duluth to 40th Ave. | 3-00 | Bid | Blue Wood Laminate | 6m x 3646m | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| | Metro | Mississippi Ridge | 11-00 | Bid | Blue Wood Laminate | 10' - 15' x 2500' | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| | Metro | I-35 W | 3-00 | Bid | Blue Wood Laminate | 10' - 20' x 10,000' | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| | Metro | Stage III & IVTH100 40th to France and then to Robbinstate | III - 2001 IV - 2002 | Des. | Blue Wood Laminate | Unknown | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| | Metro | TH61/I494 Wakota Bridge | 2003 | PD&E | Unknown | Unknown | James Hansen, 1500 W. Co Rd. B-2, Roseville, MN 55113 P:651-582-1392 F: 651-582-1368 |
| MO | | I-435 & Rte 350 Interchange | 2002-03 | PD&E | Unknown | Unknown | Steve Hamadi P:816-622-0474 |
| | | I-435 - I-470 - Rte 71 Interchange | 2003-04 | PD&E | Unknown | Unknown | Steve Hamadi P:816-622-0474 |
| | 6 | I-70 @ Rte 94. | 2004 | PD&E | Concrete | 8'-10' x 1,500' | Barry Bergman, 1590 Woodlake Dr. Chesterfield, MO 63017 P: 314-340-4390 |
| | 6 | Route 364 | 02/01 | Bid | Concrete | 2.4m - 5.5m x 6,000m | Barry Bergman, 1590 Woodlake Dr. Chesterfield, MO 63017 P: 314-340-4390 |
| MS | | No projects to bid, in Des. or PD&E | | | | | |
| MT | Great Falls | No projects to bid, in Des. or PD&E | | | | | |
| | Env. Svcs. | No projects to bid, in Des. or PD&E | | | | | |
| NC | City of Salisbury | I-85, Salisbury NC I-2511 CA | 11-00 | Des. | Unknown | Unknown | Dan Mikkelson, City Engineer, PO Box 479, Salisbury, NC 28146 P: 704-638-5200 |
| | Rdwy Des. | I-360DB Durham County | 11-00 | Bid | Brick | 19.4' x 7,193' | Ron Allen, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | I-2511CA Rowan County | 11-00 | Bid | Pile Panel w/Stone Finish | 16' x 5,250' | Roger Thomas, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-2633CA New Hanover County | 09-00 | Bid | Pile Panel | 16' x 2,150' | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-2547C Wake County | 06-03 | Des. | Pile Panel | ? x 630m | Kathy Lassiter, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-2246B Cabarrus County | After 2006 Plans-12/03 | Des. | Pile Panel | ? x 1,500' | Greg Brew, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | I-306C Durham County | 05-02 | Des. | Brick | 15.9' x 5,095' | Ron Allen, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-20809A Wake County | After 2006 | Des. | Concrete | 3.4m x 120m | Ron Allen, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-20809A Wake County | After 2006 | Des. | Earth | 3.6m x 660m | Ron Allen, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | U-2524AB Guilford County | 11-04 | Des. | Unknown | 8m x 3,950m | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | U-2524AC Guilford County | 11-04 | Des. | Unknown | 6m x 3,940m | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-2248D | 01-02 | Des. | Pile Panel | 12'-14' x 4,130' | Scott Blevins, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | R-513C Robeson County | 01-02 | Des. | Pile Panel | 10' x 425' | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | U-2524BA Guilford County | 05-02 | Des. | Pile Panel | 6m x 1,640m | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | U-2519DA Cumberland County | 05-02 | Des. | Pile Panel | 6m x 1,920m | Cathy Houser, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| | Rdwy Des. | U-3101C Wake County | 10-02 | PD&E | Pile Panel | 4m-6.5m x 3,992m | Jimmy Goodnight, 1000 Birch Ridge Dr., Raleigh, NC 27610 |
| ND | | No projects to bid, in Des. Or PD&E | | | | | |
| NE | Dept. Of Rds. | No projects to bid, in Des. Or PD&E | | | | | |

*Continued on page 12*

## The Noise Barrier Construction Forecast

*Continued from page 11*

| State | District/ Region | Location | Bid Date | Cycle | Materils | H X L | Project Contact Info |
|---|---|---|---|---|---|---|---|
| NH | | Manchester /Auburn NH Rte 101 | 10/01 | Des. | Concrete posts w/ wood panels | 12' - 14' x1,737' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | edford NH Route 101 | Unknown | Des. | Concrete posts w/ wood panels | 5' - 16' x 1,600' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester I-293 | 04/01 | Des. | Concrete posts w/ wood panels | 6' - 27' x 1,800' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester I-293 | 04/01 | Des. | Concrete posts w/ wood panels | 11' - 28' x 1,770 | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester I-293 | 04/01 | Des. | Concrete posts w/ wood panels | 10' - 21' x 2,300' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester I-293 | 04/01 | Des. | Concrete posts w/ wood panels | 13' - 20' x 1,350' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester/Auburn NH Route 101 | 10/01 | Des. | Concrete posts w/ wood panels | 12' - 20' x 2,022 | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| | | Manchester I-293 | 04/03 | PD&E | Concrete posts w/ wood panels | - 18' x 1,650' | Charlie Hood, PO Box 483, Concord, NH 03302-0483 P: 603-271-3226, F: 603-271-7199 |
| NJ | | I-80 (20) | | | Precast | 18' - 22' x ? | Bob Lee P: 609-530-3813 |
| | | I-80 (I) | | | Precast | 18' - 22' x ? | Bob Lee P: 609-530-3813 |
| | | I-80/95 | | | Precast | 18' - 22' x ? | Bob Lee P: 609-530-3813 |
| | Hwy Auth. | No projects to bid, in Des. or PD&E | | | | | |
| NM | | CN2860 - I-40 | 10-00 | | Precast/ Prestressed Barriers | 12' - 15' x 23,000' | Dennis Valdez, 7500 E. Frontage Rd., Albuquerque, NM 87109 P: 505-841-2712 |
| NY | 1 | No projects to bid, in Des. or PD&E | | | | | |
| | 2 | Judd Rd. Rte. 8 - Mid Set Rd. | Winter - 00 | Des. | Concrete Yet To Be Detailed | 5.5m x 650m | Patricia Bliss, Regional Des. Eng., 207 Genesee St. Utica NY 13501. P: 315-793-2729, F: 315-793-2400 |
| | 3 | No projects to bid, in Des. or PD&E | | | | | |
| | | I-290 Youngman Memorial Hwy Amherst & Tona | Unknown | PD&E | Unknown | Unknown | Sylvia J. Jones, 125 Main St., Buffalo, NY 14203 P: 716-847-3421 |
| | 6 | Horseheads | Unknown | PD&E | Unknown | 3-4m x 1000m | Paul McAnany, 107 Broadway, Hornell, NY 14843, P: 607-324-8438 |
| | 10 | Long Island Xway - Exit 36-40 | 12/00 | Des. | Precast Concrete | 6.1m x 3,532m | Darrel J. Kost, State Office Bldg, Veterans Hwy, Hauppage, NY 11788 P: 516-952-6652 F: 516-952-6939 |
| | 10 | Seaford Oyster Bay Between PSP & Southern Pkwy | 12/00 | Des. | Precast Concrete | 6.1m x 2,618m | Darrel J. Kost, State Office Bldg, Veterans Hwy, Hauppage, NY 11788 P: 516-952-6652 F: 516-952-6939 |
| | 10 | Long Island Xway Service Rd. Exit 63 - 66 | 07/02 | PD&E | Precast Concrete | 5.4m x 300m | Darrel J. Kost, State Office Bldg, Veterans Hwy, Hauppage, NY 11788 P: 516-952-6652 F: 516-952-6939 |
| | 10 | Long Island Xway Service Rd. Exit 66-67 | 12/02 | PD&E | Precast Concrete | 5.4m x 1,275m | Darrel J. Kost, State Office Bldg, Veterans Hwy, Hauppage, NY 11788 P: 516-952-6652 F: 516-952-6939 |
| ND | | No projects to bid, in Des. or PD&E | | | | | |
| OH | 8 | CLE-275-5-35 | 02-02 | PD&E | Concrete/Sound Absorb | Unknown | Hans Jindal P:513-932-3030 |
| | 8 | CLE/Ham-275-0-98/000 | Jan-02 | PD&E | Concrete/Sound Absorb | Unknown | Hans Jindal P:513-932-3030 |
| | 8 | Ham/But-75-22-848/600 | Unknown | Des. | Concrete/ Lanscaping | Unknown | Greg Wiekenson P:513-942-4700 |
| | 2 | LUE - Maaumee River | FY 2003 | PD&E | Unknown | Unknown | David L. Lewis, PE., District Env. Coordinator 317 E. Poe Rd., Bowling Green OH, 43402 P: 419-353-1831, F : 419-353-1468 |
| | 3 | I-71 Medina Co. | 5-00 | Bid | Concrete | 20' x 7000' | Ken Wright, Plan. Dept., 906 N. Clarke St., Ashland, OH 44805 P: 419-281-0513 F: 419-281-0874 |
| | 1 | No projects to bid, in Des. or PD&E | | | | | |
| | 10 | No projects to bid, in Des. or PD&E | | | | | |
| | 11 | No projects to bid, in Des. or PD&E | | | | | |
| | | Westlake | 11-00 | Des. | Concrete | 10' - 16' x 3400' | Mark Alan Carpenter, 5500 Transportation Blvd., Garfield Heights, OH 44125 P: 216-581-2333 x448 F: 216-581-8 |
| | | Mentor | Summer-2003 | PD&E | Unknown | Unknown | Mark Alan Carpenter, 5500 Transportation Blvd., Garfield Heights, OH 44125 P: 216-581-2333 x448 F: 216-581-8 |

*Continued from page 9*

through national organizations (e.g., ANSI); through international organizations (e.g., ISO) or other.

The results here were somewhat surprising (See Firgure 6) with TRB A1F04 be the most selected answer by far. FHWA was a distant second. Of interest is that one response to other category was a combination of multiple organizations. This is an interesting suggestion because although coordination would be difficult, a better use of resources may occur.

*Question 7.*

***What role should A1F04 take regarding pavement / tire noise research in the U.S.?***

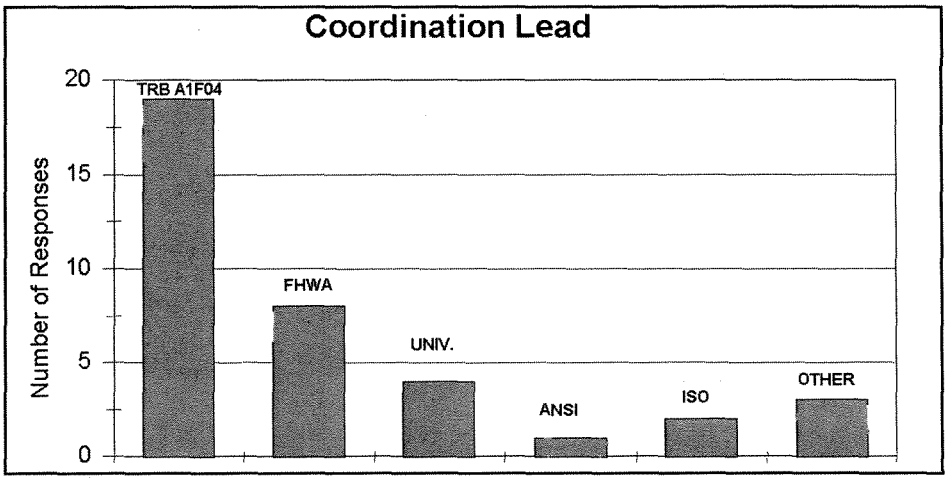



**Figure 6. Coordination Organization**

For this question, the individual responding to the survey was requested to check all that applied for the following choices: the lead; support group; information clearinghouse; formal point of contact; none; and, other.

A review of Figure 7 shows that the A1F04 Committee on Transportation Noise and Vibration of TRB should be a leader, have a support group, and function as an information clearing house. No respondent thought A1F04 should not have a role in the process.

*Question 8.*

***Do you have other comments or questions that you think should be discussed at the TRB, A1F04 summer meeting regarding pavement / tire noise?***

The responses to this open ended question were many and varied. The major points made were again that reliable numbers are needed, life cycle costs must be considered and safety

*Continued on page 14*

*Continued from page 13*

aspects should always be considered. One interesting comment about safety aspects was that if a quiet pavement surface is any less safe, should it ever be built?

## Conclusions from Survey

Proven survey methods were used during the analysis of the survey results to help determine the general opinions of the state DOTs as related to pavement / tire noise abatement implementation and research. Seventy-two (72) percent of the respondents thought that pavement types (and surfaces) should be considered for noise abatement. The needed reduction, in the opinion of the state DOTs, on how much reduction should occur before pavement surfaces are considered during abatement was 3.9 dB(A). It should be noted that this goal is being realized in many parts of the world as reported in the literature. Reliable data on which to make decisions was a key need.

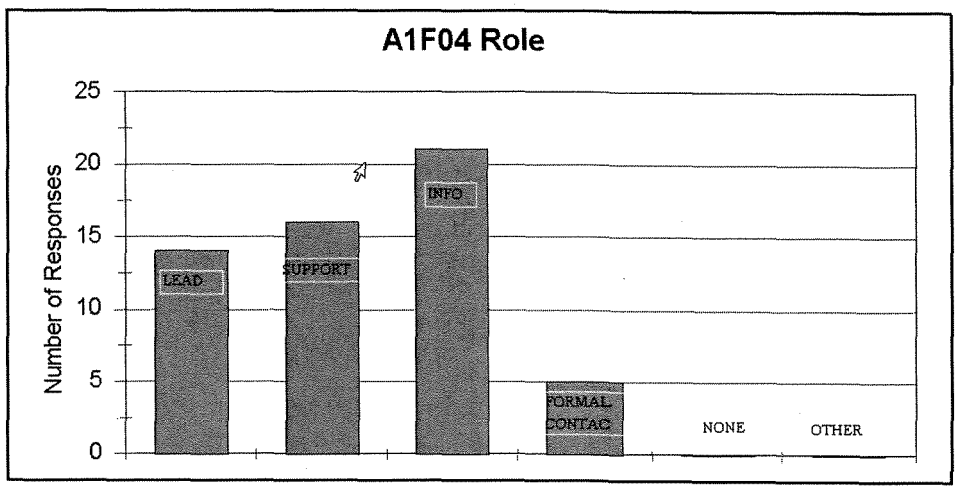



Figure 7 – A1f04 Role

*Continued on page 15*

## Pavement/Tire Noise

*Continued from page 14*

Also in this upper echelon of needs was cost data, data on the longevity of acoustic treatments, and maintenance information. The general trend is that research is needed for pavement / tire noise (moderate) but it is not the most important nor the least important. Respondents generally felt that A1F04 should take the lead in coordinating this research, supply support to the DOTs, and work as an information clearing house.

## Implications of These Conclusions

The first implication from this work is that A1F04 needs to take a lead role to help coordinate the research effort in the United States. This process has been started but the level of activity should be increased if this abatement technique is to be used.

The second implication is that state DOTs are reluctant to explore this abatement technique because of a lack of solid numbers. Variances in results from the same pavement treatments and surfaces have been documented. Europe would seem to have more success in reducing noise using pavement surface and types than the United States. As described in the recently completed NCHRP synthesis1 this could be a result of variances in materials, workmanship, and vehicle types. The solution to this problem would be to first normalize all data taken where possible to better explore why the successes and failures have occurred. Second, the normalized data should be put into a larger data base to provide more reliable data. The data base would also help to point out where research dollars should be spent to supplement the available information. A data base similar for that recently done to determine reference energy mean emission levels for the Traffic Noise Model would provide much more reliability. This would allow overcoming a major impediment to the use of this abatement measure.

An observation during the review of the questionnaires is that there seems to be a lot of mis-information among the DOTs. This again emphasizes the need for information distribution. This mis-information seems to be particularly true regarding longevity of the acoustic surface treatment. The longevity and cost issues need to be better explored. Consider the following. Research has shown that while sudden changes can occur, in general open graded asphalt surface treatment may act like dense graded after about six years of service. Is the cost warranted for this increased noise reduction over the short life between resurfacing? If we assume that the "old rule of thumb" that every additional 1.5 dB of insertion loss requires about one additional meter of wall height, and that the average cost of a barrier wall in the United States is $174 per square meter then if the minimum desired abatement goal of 3.9 dB(A) is reached, then over $452 per meter of roadway would be available for the second overlay. By the time the third overlay is due it would be time for normal resurfacing or if trends continue, major reconstruction. These type of details should not be overlooked during cost analysis and the "whole picture" needs to be explored.

Also, development of pavement surfaces continue and more abatement is needed in many areas where barriers are not reasonable or feasible. Quieter pavement may provide help and work in coordination with other abatement measures.

*As can be seen from this discussion, more work is needed on this possible abatement measure of the future.*



TRB

## Transportation Research Board and Canadian Acoustical Association

### To Co-Sponsor Acoustics Conference in Canada October 1, 2 and 3, 2001

The Acoustics Conference in Canada 2001 will be held at the Nottawasaga Inn located in Alliston, Ontario, which is approximately 45 minutes to an hour from the Toronto Airport. The conference will commence on Monday October 1, 2001 and end on Wednesday October 3, 2001. Members of the Canadian Acoustical Association (CAA) located in the Greater Toronto Area will organize the conference sponsored by the Canadian Acoustical Association with the Transportation Noise sessions Co-Sponsored by the Transportation Research Board (TRB).

The following technical areas are proposed to be included:

- Industrial Noise
- Building Acoustics and Vibration
- Outdoor Sound Propagation
- Speech Perception
- Occupational Hearing Loss
- Hearing Protection
- Acoustic Materials
- Underwater Acoustics
- Physiological Acoustics
- Sound Quality
- Legislation/Environmental Noise
- Computer Applications
- Canadian Standards Instrumentation
- Transportation Related Noise and Vibriation
- Community Noise
- Musical Acoustics

The emphasis for the 2001 Conference will be to ensure that all areas of acoustics are represented. The sessions will include opening plenary lectures, invited and contributed papers, panel discussions and exhibits. In order to ensure that all areas of acoustics are represented the technical chairs are putting together a group of highly skilled

*Continued on page 16*

## Acoustics Conference

*Continued from page 15*

and motivated individuals to act as session chairs. They can only be successful if the membership, including students, attend the conference and present papers.

### Abstracts

Abstracts of a maximum of 250 words must be submitted by June 1, 2001. The abstract should be prepared and sent in accordance with the instructions appearing in this issue of Canadian Acoustics. Submission by e-mail is strongly encouraged; files can be prepared in any word processing software. For those without access to e-mail, digital files on diskette or paper copy should be mailed to the address given below. Notification of acceptance of abstracts will be sent to the authors by June 20, 2001 along with a registration form. Summary papers are due by July 31, 2001. This deadline will be strictly enforced in order to meet the publication schedule of the proceedings issue of Canadian Acoustics.

### Students

Student participation at the CAA 2001 Conference is strongly encouraged. Awards are available to students whose presentations at the Conference are judged to be particularly noteworthy. To qualify students must apply by enclosing an Annual Student Presentation Award form with their abstract. Students presenting papers may also apply for a travel subsidy to attend the Conference if they live at least 150 km from Alliston, Ontario. To apply for this subsidy, students must submit an Application for Student Travel Subsidy included in this issue.

### Accommodations

Accommodations and meeting space for the delegates of the 2001 Conference will be at the Nottawasaga Inn (www.NottawasagaResort.com) located just north of Toronto, Ontario. The Conference rate will be $110.00 per night. To reserve your accommodation, please contact the Inn directly at (416) 364-5068.

It is important to note that the rooms are only guaranteed for the CAA Conference up to July 1, 2001. After that date the rooms are subject to availability. This is extremely important because there are not many alternative accommodations in the area.

### Exhibits

A permanent exhibition showcasing the latest technology in acoustics and vibration equipment, instrumentation, materials and software will be open continuously during the Conference.

Space will be available for exhibits by companies and organizations in the field of acoustics. Sponsorship of the breaks and/or lunches is also welcome. If you are interested in either of these opportunities please contact Dalila Giusti.

### Important Dates

*June 1, 2001*
Deadline for submission of abstracts

*June 20, 2001*
Notification of acceptance of abstracts

*July 1, 2001*
Deadline for guaranteed rooms

*July 31, 2001*
Deadline for receipt of summary papers & early registration

*October 1 to 3, 2001*

**Acoustics Conference in Canada 2001**

Conference chair:
Dalila Giusti, Jade Acoustics Inc.
545 North Rivermede Rd. Ste 203
Concord, Ontario L4K 4H1
(905) 660-2444, Fax: (905) 660-4110
e-mail: dalila@jadeacoustics.com

Technical chairs
Tim Kelsall, Hatch Associates Ltd.
45 Meadowcliffe Dr.,
Mississauga, Ontario,
Canada L5K 2R7
(905) 403-3932, Fax: (905) 855-8270
e-mail: Tkelsall@Hatch.ca
and
Alberto Behar, Noise Control
2800 Speakman Dr.
Scarborough, Ontario, M1M 2X8
Tel/fax: (416) 265-1816
e-mail: albehar@trigger.net

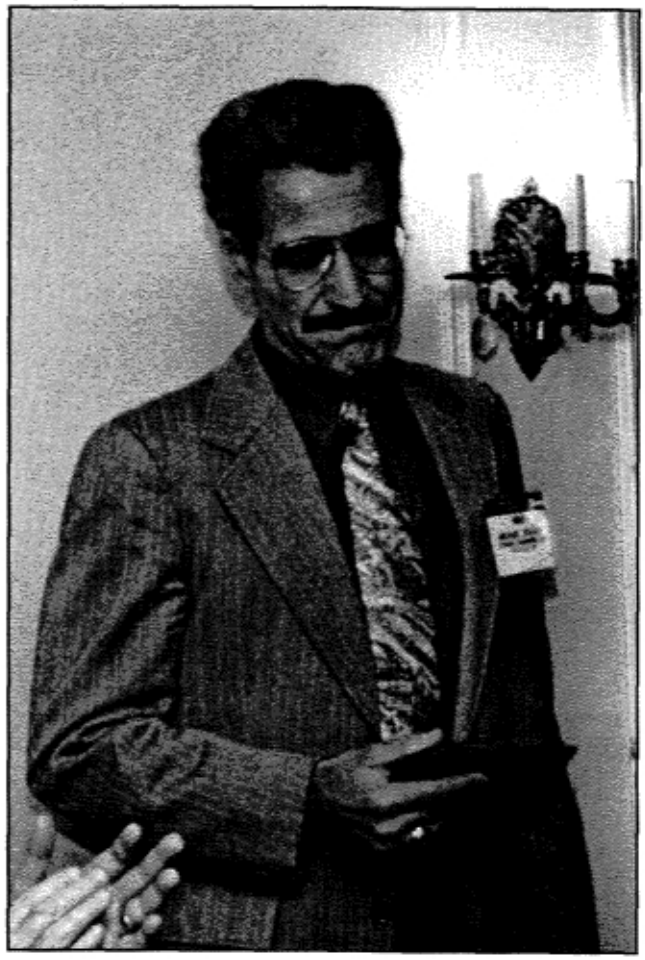
Transportation Noise sessions chair

Soren Pedersen, The Wall Journal
26 Warrender Ave,
Etobicoke, Ontario, Canada M9B 5Z2
Telephone (416) 231-4514 ,

For additional information visit
www.caa2001.com
or
www.thewalljournal.com

# Mike Staiano Receives Harter Rupert Award for Best Paper

**Special Report from the 80th Annual Meeting of the TRB January 7-11, 2001, Washington, DC.**



**Mike Staiano receiving the Harter Rupert Award for Best Paper for 2001 during the TRB meeting in Washington, DC.**

Mike Stainao was honored at the A1F04 committee's annual dinner in Washington DC, as this year's recipient of the Harter Rupert Award for the best paper on transportation-related noise. Congratulations Mike!!!

Entitled "**Comparison of Light-Rail and Bus Transit Noise Impact Estimates per FTA and APTA Criteria**", the paper examines the Georgetown Branch Transitway/ Trail which was proposed as a combined transportation facility and hiker/biker trail using a former railroad right-of-way. The Transitway would link the Bethesda and Silver Spring, Md. central business districts and be developed by the Maryland Mass

Transit Administration (MTA) together with the Montgomery Co. Department of Transportation. At the time of this evaluation, three alternatives were considered:

- o Railway serviced by light-rail vehicles.
- o Busway serviced by diesel buses, or
- o Busway serviced by dual-propulsion (electric motor/diesel engine) buses,

The origin of the Transitway proposal dates to 1985 when CSX, which had been using the Georgetown Branch line for freight operations since 1910, announced the cessation of service. Montgomery Co. acquired the right-of-way in 1988. The Montgomery County Council in 1989 approved the combined trolley/trail use of the right-of-way. Work was begun on the project by MTA in 1990 but was halted due to budget constraints. In 1994, the studies were reactivated by MTA with the intent of obtaining federal funding--necessitating the preparation of a Draft Environmental Impact Statement (DEIS). The initial environmental noise evaluation was performed using the American Public Transit Association (APTA) Guidelines. When work resumed, the Federal Transit Administration (FTA) Guidance Manual was available. Consequently, noise impacts were assessed via methods from both documents to maintain continuity with previous work.

*Continued on page 18*

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# Rudy Hendriks Awarded Official TRB Emeritus Status

Rudy Hendriks (left) receiving a token of appreciation from Gregg Fleming (right) during the award ceremony

During the main committee session on Thursday, TRB officials immortalized long-time A1F04 committee member Rudy Hendriks. Rudy was provided official TRB emeritus status. Some of Rudy's many accomplishments are listed in the letter that was drafted on behalf of the committee by Keith Jones. This letter along with the committee's unanimous vote (in favor) led to Rudy being awarded TRB emeritus status. Rudy joins Grant Anderson and Eric Stusnick as the committee's only members with emeritus status.

Anyone wishing to nominate other individuals for emeritus status should contact Gregg Fleming at (617) 494-2372. As a committee, Gregg has established a goal of nominating at least one member each year.

Continued on page 19



Thomas L. Weck
TRB Section F Chairperson

August 24, 2000

Dear Mr. Weck,

It is a pleasure for the Committee A1F04, Transportation-Related Noise and Vibration, of the Transportation Research Board (TRB), to nominate Mr. Rudy Hendriks for Emeritus Membership. Mr. Hendriks has been an active participant for two decades in TRB noise committee activities. During this period his conscientious approach has not only resulted in numerous contributions to the Committee but also to many related transportation noise research and policy activities throughout the United States, particularly in the State of California. It should be mentioned that his contributions have been consistently of high merit, stringently observing the basic principles of scientific investigation.

In the last 20 years, Mr. Hendriks has been a regular participant at the TRB annual meetings, as well as the summer meetings of A1F04. Following are example presentations, papers and other activities he has participated in or provided under the aegis of TRB:

- "Active Noise Control Tests", 73rd Annual Meeting of the Transportation Research Board, January 1994.
- 1992 Field Evaluation of Acoustical Performance of Parallel Highway Noise Barriers in California. It was published in Transportation Research Record 1366.
- "Heavy Truck Noise Emission Levels on Grades in California", 65th Annual Meeting of the Transportation Research Board, January 1986. It was published in Transportation Research Record 1058.
- "Caltrans Experiences with Earthborne Vibration" (with Hatano M), 64th Annual Meeting of the Transportation Research Board, January 1985. . It was published in Transportation Research Record 1033.
- "California Vehicle Noise Emission Levels" 64th Annual Meeting of the Transportation Research Board, January 1985. . It was published in Transportation Research Record 1033
- 1982 Evaluation of Noise Barriers. (with Hatano M), It was published in Transportation Research Record 865.
- "Measuring Excess Attenuation of Traffic Noise Due to Ground Effects, or In search of the Elusive Alpha", 1993 summer meeting July11-14, 1993, Berkeley, California.

As an Associate Transportation Engineer at California Department of Transportation (Caltrans), Mr. Hendriks, in addition to playing a key role in a number of educational studies in the area of transportation-related noise, was the author of the Technical Noise Supplement that was published along with Traffic Noise Analysis Protocol by Caltrans.

Mr. Hendriks is regarded by his peers as a premier researcher in the field of transportation-related acoustics. He has eagerly shared his inexhaustive creativity, methods of innovation and scientific rigor with the TRB Noise community. On behalf of committee A1FO4, it is my true pleasure and privilege to nominate Mr. Rudy Hendriks for the TRB Emeritus Membership.

If you any questions regarding this nomination, please contact me at the telephone number listed below.

# Research Needs Statements to be Ready by Fall 2001

*Gregg Fleming A1F04 Chairman*

TRB will hold a research needs conference in the fall of 2001. As you know, very few committee members have been able to attend past conferences. Consequently, I think it is important for us as a committee to have our statements in fairly good shape prior to the fall conference so attendees can best represent the committee. You will see this reflected in the attached material. Also attached, you will find several statements as they currently exist. Note the completeness of the attached statements are by no means consistent, but I have included them to assist folks in preparing comments for the Summer meeting in New Orleans. If you have any suggestions for improvements, please submit them to me before July 1, 2001, if you are not attend-

ing the meeting.

## A1F04 RESEARCH NEEDS STATEMENTS (DRAFT)

*I. HIGHWAY NOISE*

*The following presents a compilation of proposed research needs statements related to the subject of highway noise. This compilation includes 1) needs already identified in the last TRB Conference on Environmental Research Needs in Transportation held in November, 1996, but not yet addressed, and 2) newly proposed needs statements.*

### Carry-over Items from 1996 Conference Report

1. Atmospheric Effects on Highway Traffic Noise Propagation

Problem Statement: With the imminent release of the Federal Highway Administration's Traffic Noise Model (FHWA TNM), atmospheric effects remain the largest source of error in highway noise modeling. The absence of atmospheric effects in the TNM degrade the accuracy of predictions directly (through refraction) and indirectly, since atmospherics are interrelated with ground effects, as well as noise barrier insertion loss.

Research Objective: The objective of this research is to develop appropriate algorithms that can be included in the TNM to allow for more accurate modeling of atmospheric effects on noise propagation.

2. Benefits of Reduced Vehicle Noise (*This is to be incorporated into needs statement re: tire noise*)

Problem Statement: Traffic noise is bothersome to adjoining uses and is a point of resistance in expanding roadway capacity. Noise mitigation currently consists of noise barriers, with varying effectiveness and questionable aesthetic consequences.

Research Objective: Identify and measure the benefits of quieter vehicles. Technology exists that could be employed to produce significantly quieter vehicles. If a substantial portion of the fleet were made quieter, traffic congestion would become less bothersome, a broader range of adjacent uses would be appropriate, and noise barriers would not be needed. Information on these and other factors would be useful in the event of consideration of a new noise standard for vehicles.

3. Defining Substantial Noise Impacts (*This topic has apparently been addressed*)

Problem Statement: In addressing noise impacts of proposed highway projects, substantial increases must be addressed. However, FHWA has no criteria to define substantial increases. The State Highway Agencies (SHAS) have varied values.

Research Objective: Assess how FHWA's Washington, Regional, and Division Offices define substantial increases in noise. Also, review the SHA criteria. Make the information available, perhaps to obtain a consensus on a range of dB increases to cause a consideration of abatement.

4.Measurement of the Effect of Highway Noise Barriers on Air Pollutant Concentrations

Problem Statement: Air pollution and noise from highways are transported into the adjoining neighborhoods. Barriers have been and are being installed to reduce the noise levels. These barriers also have an effect on the transport of air pollution into the adjacent neighborhoods; however, the magnitude of the influence of these barriers has not, to our knowledge, been measured.

Research Objective: Measure air pollution concentrations (i.e., carbon monoxide) on both sides of selected noise barriers and, preferably, obtain concentration data for those areas before the noise barriers were installed. The CO concentration would be measured via bag sampling (i.e. later analysis by non-dispersive infrared spectroscopy) and battery-operated sampling pumps. The measured CO concentrations could be compared with existing air pollution dispersion models to determine what modifications would be required of these models to take into account the installation of the noise barriers. Also, it would be possible to incorporate the measurement of noise levels into this research project.

5. Mitigation of Nighttime Construction Noise (*Clarification of specific areas of need is required; i.e. identification of sources, mitigation, noise and vibration? In addition, reference was made to an nchrp synthesis report as a possible resource.*)

Problem Statement: Many states perform construction work at night to reduce traffic congestion. Noise from these activities significantly affect nearby residents in urban areas.

Research Objective: Determine cost-effective, temporary methods to reduce noise from construction operation and equipment-especially "impact" type construction methods.

6. Noise and Vibration Monitoring Prior to, During, and After Construction (*A revised statement will be submitted by Mr. Win Lindeman on this topic - see end list.*)

Problem Statement: Many times, noise and vibration are monitored and/or predicted during the E.I.S. process during construction. After construction, noise and vibration are not considered unless a complaint is registered.

Research Objective: Review and catalogue existing methodologies for quantifying and assigning values to wetland attributes. Make field investigations, apply the methodologies, make pre- and post-construction evaluations, and compare the methodologies.

7. Physics of Noise Within the Urban Highway Center (*abridged from 1996 report*)

Problem Statement: The number and types of vehicles traveling our highways has created a corresponding increase of noise generated. Noise abatement techniques have been developed to reduce the impacts of noise generation within transportation corridors. The continuing increase of noise within the corridor has been considered too complex to model effectively in three-dimensional space. The transportation corridor is traditionally treated as two-dimensional rather than a three-dimensional space for noise abatement engineering. Research is needed to characterize the dynamics of highway corridor noise. This research would analyze the physics of urban highway noise as to its typical specific components and their frequency, intensity, pitch, and duration. Analytic characterizations of noise should consider highway corridor itself as three-dimensional space overlapping contiguous property. This would be a similar modeling approach to air pollution studies

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assessing pollution indices extending beyond the highway corridor.

Research Objective: The investigation of urban highway noise physics would include: 1) Empirical measurement and characterization of component noises generated within urban transportation corridors using selected corridors with a variety of typical noise abatement treatments in place. Measurements would be conducted both at ground level and above ground to establish the three-dimensional physics of the sound waves. 2) Identifying the elements of the noise generated which have greatest potential for abatement research, those which have the least opportunity for control beyond those regulations currently in force, and those which have the most enduring effect when reduced. 3) Creation of a "noise source model" for the type and duration of the noise components identified, treating them as sound waves spreading dynamically through space as a function of time. 4) Utilization of a spatial information modeling system to develop dynamic maps of component sound waves moving through space. Noise abatement procedures would be modeled as surfaces of varying degrees of "roughness" which the sound waves flow.

8. Projected Traffic Volume and Attendance Noise Level Verification (*The consensus of the group was to drop this statement.*)

Problem Statement: State Highway Departments and Transportation Authorities are constructing increasing numbers of noise barriers to mitigate highway project impacts. The design is based, in part. on traffic volumes predicted to 20 years beyond construction. Are the predicted levels accurate and if so, are the corresponding noise levels accurate?

Research Objective: Conduct literature review of traffic prediction verifications for interstate highway projects. Conduct traffic volume and mix classifications on interstate highways which are in operation at least twenty (20) years and compare the results to volumes predicted in the design phase. If possible, this should be done where noise barriers have been constructed so the predicted traffic volumes and noise levels can be compared to actual counts and readings. The study's goal would be to determine if our prediction methods are reliable, or to identify what factors should be modified to improve prediction technology.

9. Using Recycled Materials in Noise Wall Construction

Research Objective: Develop a guidance manual for municipalities and small business enterprises to promote the greater development and utilization of commonly available and recycled materials as noise barriers. The manual should include a description of materials suitable for use as barriers; discuss methods for forming materials into suitable shapes for use as barriers; and provide a guide on cost comparison to aid selection.

## New Items

1. Highway Traffic Noise Emissions from the Underside of Bridge Structures

Problem Statement: Receptors adjacent to bridge structures are often subjected to undesirable noise levels even after noise barriers are constructed on the structure. It is unclear whether such emissions are caused by vibration of the structure deck, and whether different structure designs (open beam, box girder, reinforced concrete slab, etc.) may be a factor. The problem is to determine the mechanisms and/or sources of the noise emissions, and if there are ways to mitigate the situation. A related side issue relates to the degree of influence that may exist due to the open median area between parallel bridges, and how this may influence overall levels as well.

Research Objective: Determine the source or sources of noise/vibration emissions from bridge structures, and quantify differences that may be associated with various bridge designs. Determine feasible mitigation measures, which may include a determination of the best design approaches to minimize structure noise.

*Submitted by: Harvey Knauer, Environmental Acoustics*

2. Method for In-Situ Testing of Noise Barrier Sound Absorption Qualities

Problem Statement: During the construction of a noise barrier, the quality and physical characteristics of every component that arrives or is constructed on site, can and usually are verified by the owner. This verification can take the form of either visual examination, structural calculations, or lab testing. The only characteristic assumed to meet acceptance criteria without testing on a regular basis is sound absorption. This property is usually only verified by lab testing when the product is introduced to the agency for initial acceptance. Ideally, it would be preferable to be able to test sound absorption of a wall system for each installation. This can not be done currently in the absence of an efficient and effective method of in-situ acoustical testing, either at the manufacturing plant, as product is delivered, or after installation. An in-situ testing method would also assist in monitoring the performance of installed sound absorptive barriers as they age, and could serve as a tool to detect early deterioration of absorptive materials.

Research Objective: Develop an efficient and effective method for field testing noise barrier systems for sound absorption qualities.

*Submitted by:*
*Soren Pedersen, The Wall Journal*

3. Develop Standards for Tire/Noise Characteristics of Pavements

Problem Statement: There have been at least 6-9 dBA differences in pavements based on their characteristics. A draft ISO standard has been developed without any US testing. There is no standard tire for noise testing. Quiet pavements can be developed without affecting skid resistance.

Research Objective: Develop standards for testing and characterizing tire/noise properties of pavements.

*Submitted by: Michael McNerney, University of Texas*

4. Tire/Road Noise

Tire/road interaction noise is the primary source of noise at highway speeds for passenger cars and trucks and one of the primary causes of environmental noise in cities. European trials, which have concentrated primarily on pavement solutions, have found that a 10 dB reduction in noise generation is possible with some advanced porous highway and rubberized highway concepts. This eliminates or reduces the need for noise barriers and will reduce public resistance to future increases in highway density.

European technology is still in development to improve durability and further optimize the noise reduction effect. In

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parallel, US research effort is required to:

o Adapt European technology to the US. European approaches do not directly translate to US construction techniques or durability and safety standards. Adaptation and testing of these approaches for US application is needed.

oThere is potential additional benefit in looking at the fundamentals of tire behavior and tire/road interaction to better understand noise generation to further optimize tire/road behavior to reduce noise. Better understanding of the noise generation mechanism is required.

*Submitted by: Bob Bernhard, Purdue University Institute for Safe, Quiet, and Durable Highways*

5. Title: Highway Construction Noise and Vibration Impact Criteria and Mitigation techniques

Problem Statement: Most state DOTs address construction noise and vibration impacts on a case by case basis as they arise, usually during the construction phase. It is desirable that early identification and mitigation for potential impacts be addressed in the Project

Development stage. However, specific criteria to identify potential impacts have not been developed on a national or international basis. Therefore, research needs to be conducted to address this void.

Research Objective: The objective of this research project would be to review existing highway construction noise and vibration impact criteria that are being used throughout the US and other countries and then propose a set of criteria that can be applied uniformly across the US, similar to the NAC developed by FHWA for traffic noise impact assessment.

*Submitted by: WIN LINDEMAN, Florida DOT*

6. Highway vehicle source noise distribution (*i.e., expansion of Florida Atlantic Work*)

7. TNM performance improvement with irregular terrain

*Submitted by: Mike Staiano, Staiano Engineering*

8. Jake brake data synthesis

*Submitted by Mike Staiano, Staiano Engineering*

*II. RAIL NOISE*

1. Transfer Mobility Test Methods

For example, we have found that you can get away with a relatively low coherence in transfer functions and still have good data as long as you have a large number of averages. That is, how low can the signal be in the noise floor and still be acceptable? In addition, we have been thinking about using shakers with a swept-sine signal or the use of MLS or other modern signal processing techniques as alternative test methods

*Submitted by Dave Coate, Acentech*

2. Locomotive Warning Horn Noise Criteria Development

Acentech and several other consulting/research groups have been working on major railroad merger projects over the last several years. In particular, Acentech worked on the Union Pacific/Southern Pacific Merger and conducted the follow-on noise mitigation studies in Wichita, Kansas and Reno, Nevada. Major concerns regarding locomotive warning horn noise were raised in these two cities. Recently we completed the Conrail Acquisition EIS-one of the largest noise EIS efforts to date-the study area was the eastern half of the U.S. More recently we worked on the Canadian National/Illinois Central and the BNSF/CN Merger. The specific noise issue at the heart of these studies is locomotive warning horn soundings at grade crossings where increases in train traffic (hence horn soundings) could cause a noise impact. The distance to the 65 dBA Ldn noise contour can extend as far as 500 to 1000 feet from the grade crossing and can encompass a large number of homes. The Surface Transportation Board (STB-the oversight agency for these mergers) currently uses a noise analysis threshold of 65 dBA Ldn and a 3 dBA Ldn increase. However, the STB environmental rules do not refer to this threshold as a threshold for significant noise impact. During the course of our studies, we were asked by the STB to research if these criteria could be used to determine significant impacts, or if another more suitable criteria should be used. The FAA uses a 1.5 dBA Ldn

increase at 65 dBA Ldn as significance criteria. The 1.5 dBA Ldn increase is based on a 3 percent increase in people highly annoyed. We applied the same 3 percent increase to the rail "Schultz" curves at 65 dBA Ldn and found that the allowable increase would range from 2 to 4.2 dBA. That is, the dose-response data does support the premise that railroad noise is less annoying than aircraft noise, and also supports the 65/+3 dBA Ldn threshold currently used by STB.

We reviewed the does-response data upon which the Schultz curve and its variations are based and none included locomotive warning horn noise. We think that is a major gap in the supporting research for these merger projects. It could be, for example, that the "startle effect" of these horns would result in a 1 dBA allowable increase. Or perhaps the Ldn is the wrong metric to use. We believe that a comprehensive attitudinal survey/noise measurement program should be conducted to address these issues

*Submitted by Dave Coate, Acentech*

3. Vibration "Schultz" Curve Development

Acentech has been conducting vibration studies for the MBTA to address recent claims of increased vibration by Beacon Hill residents in Boston. The MBTA uses a prioritization method to rank order mitigation effectiveness/severity of the problem for the Red Line, Blue Line, and Attelboro Commuter Line. A very important key point in these retrofit (analogous to the Type II studies for highway noise) projects is the determination of the mitigation effectiveness, or "bang for the buck." The noise mitigation prioritization is relatively straightforward since it relies on the well-established "Schultz" curve for noise. However, a well-established dose-response curve does not exist for vibration. Intuitively, people's reaction to vibration should be analogous to noise--i.e., energy should correlate better with annoyance than maximum level. However, existing vibration standards are simply based on maximum level. We think that this constitutes a major hole in the supportive research for the transportation noise and vibration field. We recommend that a comprehensive attitudinal survey/vibration program be conducted to provide this needed basic research

*Submitted by Dave Coate, Acentech*

4. Data synthesis for vibration insertion loss afforded tie and ballast trackwork

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with ballast mats, tie boots, and trenches
*Submitted by Mike Staiano, Staiano Engineering*
5. Tire Shreds for Ground Vibration Control
*Submitted by Jim Nelson, Wilson Ihrig*
6. Effects of Wheel Hardness and Metallurgy on Wheel Squeal Noise Control
*Submitted by Jim Nelson, Wilson Ihrig*
7. Incorporation of Rail Noise Prediction in TNM
*Submitted by Jim Nelson, Wilson Ihrig*
8. Effectiveness of Quiet Zones
Submitted by Jim Nelson, Wilson Ihrig
9. High Speed Train Wheel/Rail Noise Control
*Submitted by Jim Nelson, Wilson Ihrig*
10. Rail Corrugation Noise Control
*Submitted by Jim Nelson, Wilson Ihrig*
11. Update of Attitudinal Response to Wheel Rail Noise in Transit Corridors
*Submitted by Jim Nelson, Wilson Ihrig*
12. Wheel Rail Squeal
*Submitted by Jim Nelson, Wilson Ihrig*

*III. AIRCRAFT NOISE*
1. Research on Helicopter noise impacts to the community
Helicopter and tiltrotor aircraft present more complex noise characteristics than do fixed wing aircraft. This complexity directly impacts the manner in which their noise must be modeled. Part of the complexity is the highly directional nature of the generated noise. For instance the advancing side (side on which the rotor is moving forward) is usually louder than the retreating side (side on which the rotor is moving backwards). Also rotary wing noise is dependent on the flight condition, such as descent, and the resultant blade-vortex interaction (BVI). BVI produces louder levels forward of the aircraft than to it's sides or rear. Current aircraft noise models, such as the FAA's Integrated Noise Model (INM), the Military's NoiseMap, and the FAA's Helicopter Noise Model (HNM), do not include these important dependencies. NASA's Rotorcraft Noise Model (RNM) does include these characteristics if it is reflected in the source noise data that is inputted into the program. The RNM source data requirements are significantly more complicated than those for fixed winged aircraft. Thus, research is required to develop source data for rotary wing aircraft so that their unique noise characteristics can be appropriately modeled and their noise impacts can be properly accounted for in community noise impacts assessments (Submitted by Micah Downing, Wyle Labs).
2. Enroute Aircraft Noise
*Submitted by Neal Philips, MWAA*
3. Low Frequency Noise (dose response, criteria, etc.)
*Submitted by Grant Anderson, HMMH*
4. Low Level Noise Measurement and Impact Criteria beyond 65 dB DNL
*Submitted by Micah Downing, Wyle Labs*
5. Reverse Thrust noise and directivity behind start of takeoff roll
Submitted by Mike McNearny, University of Texas
6. Aircraft source noise reduction
7. Using GPS to reduce aircraft noise impacts
8. Use of new routing structures and operational procedures to reduce aircraft noise

*IV. OTHER PLACEHOLDERS*
1. Land use compatibility
2. National park noise needs
3. Definition of LAeq1hr criteria for off-peak periods (e.g., evening, night, and early morning)
*Submitted by Mike Staiano, Staiano Engineering*
4. Simple construction site noise prediction procedure (e.g., TNM geometry input interface with simpler propaga-

# TRB A1F04 COMMITTEE 2001 SUMMER MEETING
# New Orleans, Louisiana - July 22-25, 2001

This year's annual summer meeting will be held at the Omni Royal Orleans Hotel right in the heart of the French Quarter. A block of rooms has been reserved for meeting participants at a special rate of $89.00 plus tax for single and $99.00 for double accommodations, per night. The rate and room availability are guaranteed up to June 20, 2001 - so please make your hotel reservations early and be sure to mention that you are attending the "TRB Conference." For reservations call 1-800-THE-OMNI or 504-529-5333.

Anyone interested in either attending the meeting, securing exhibit space or sponsoring special events (breaks, reception, lunches, etc.) are asked to contact **Andrea Goldstein at the Volpe Center at (617) 494-2018** as soon as possible since opportunities are limited. Those wishing to provide presentation of papers are asked to contact **Matt Murello of Lewis S. Goodfriend & Associates at (973) 560-0090**

This year, barrier manufacturers, suppliers and contractors are invited to take part in a very special "Virtual Noise Barrier Tour" and give presentations on acoustical and non-acoustical issues and their experiences related to barrier manufacturing, construction, and maintenance (an open panel discussion would follow). This Virtual Tour will be hosted by Soren Pedersen (The Wall Journal) and Harvey Knauer (Environmental Acoustics, Inc.) Anyone interested in presenting are asked to contact Soren for more details at (416) 231-4514.

# COLLABORATION - THE NEXT STEP IN e-COMMERCE

by Steven Desrocher

Nobody can complain that information isn't available. There is now something like 1.5 billion pages on the web - enough information to fill a bookshelf more than 1,300 kilometres long. And that does not count the vast number of pages in the hidden web - pages not yet catalogued by search engines. No, information is decidedly not the problem. Finding the right information is something else.

The information highway is paved with good intentions. What it really needs are some good road maps. And that's where collaboration comes in.

**Creating the Map:** When The Road Authority (also known as TRA) was first established by Ontario Good Roads Association in 1997, its role was that of an information portal - a point of entry to the world wide web where customers and suppliers could exchange information about products and services for public works.

It was, says Steve Desrocher, who manages The Road Authority, a much-needed service. Members could search for information on, say, guide rails, and find not only technical information and standards but also a list of members supplying the product with links to their web sites.

"People need information that is pertinent," claims Desrocher. "It's fine to do a search on the web for information about asphalt cement suppliers. Not much use to find that the supplier is in Australia. Using TRA, our members were confident that our database had products and services designed to meet Ontario requirements - information that they could act on."

When TRA first went live, it averaged no more than 20 hits a day. By 1999, The Road Authority had 1,200 members and was receiving up to 50,000 hits a year.

**Next Step - Collaboration:** Information portals do a good job of providing access to information but make few claims about the applicability of the information.

By the middle of 2000, The Road Authority recognized that it now had the critical mass needed to take information management to the next level.

"There's almost too much information available, certainly too much for any one person or organization to assimilate," says Desrocher. "The idea of collaboration makes a lot of sense. If organizations with a common interest share their knowledge and experience, it becomes a much easier job to pull the best information together."

With the private sector already on board as members, The Road Authority was now ready to link up municipal users. Four regional municipalities (Durham, Peel, Halton and York), three cities (Toronto, Mississauga and Brampton) and the Ontario Ministry of Transportation have agreed to use the system.

The Road Authority will now act not just as a portal through which customers and suppliers can exchange information but also as a depository for testing, standards and relevant technical documents within a comprehensive database.

A municipality, for example, will now be able to maintain its own supplier database on The Road Authority's server and link those products and services to relevant technical specifications and approval lists. Using this information, the municipality can manage the complete procurement cycle from searching for suppliers to purchasing on-line.

Products and services on the MTO's Designated Sources of Material list are automatically included in the approved suppliers list. Suppliers can also request that the Ontario Provincial Standards Product Management Committee review their products. If the PMC accepts the product, it automatically gets an "excepted for use" designation in TRA's database.

It is a mutually beneficial process, says Joe Bucik, Manager of the Highway Design Office in MTO's Engineering Standards Branch.

"We have been using The Road Authority for some time as a source of information on suppliers, although that is no guarantee that the MTO will accept them as designated suppliers," says Bucik. "In turn, people can look at our annual DSM publication to see which suppliers have products that we deem acceptable for our use.

"Sharing a common database with other agencies and municipalities will certainly save time in the search process and ensure that the database is up to date. One specific feature that we like is that there are two doors into the database - the public door and our own private area where we can maintain the information that we need specifically for our projects and contracts."

As with the MTO, says Desrocher, each municipality will have the option to have its own private approved suppliers list within The Road Authority and, at its discretion, can share that information with other municipalities.

"Which, of course, we hope they do," he adds. "Making the system work depends in large measure on people's willingness to co-operate and collaborate."

Saving time and money through collaboration was certainly part of Durham's motivation in joining the TRA in its expanded role. At the urging of Tony Prevedel (Chair of the OPS Product Management Committee, and Director of Transportation and Construction Services in Durham), Durham was the first regional municipality to commit to using the collaborative system.

Durham has an associated chain of material suppliers and approved products that it will now be posting on the TRA site, says Allan Henning, Senior Contracts Technician for the Region of Durham and responsible for the tendering of all infrastructure contracts.

"Through mergers and some of the other downsizing and downloading activity of the last while, our approved suppliers list has become somewhat outdated," says Henning. "This will act as an impetus to get our products updated and should be a tremendous opportunity for vendors to make new customer contacts relatively easily and inexpensively."

"Each municipality, to one degree or another, maintains its own standards for many products and services and that takes a lot of time and effort," he adds. "It seems to make more sense to have a single database maintained by TRA rather than each of us having one in our desk drawer. Each municipality would still have the freedom to select the vendors and the products that they want to use but we would be collaborating and saving time and effort in the information management side."

And that is precisely how The Road Authority expects municipalities and agencies to react once they see the benefits of the new system, concludes Steve Desrocher.

Nobody would deny that, between municipalities, there can be a healthy sense of competition and some strong rivalries, he says. But with downsizing and shrinking budgets, every municipality and agency is looking for ways to maintain or improve services without increasing costs.

"Collaboration through the medium of e-commerce is clearly a way to accomplish this."

## Backgrounder

### *The Road Authority*

**Web site:** www.roadauthority.com
**Established:** 1997
**Private sector members:** 1400
**Public sector members:** MTO and Ontario municipalities
**# of products in database:** 2400
**Product approval:** managed by Ontario Provincial Standards Product Management Committee

**Fees:** Companies: $275 a year
Municipalities: free

**TRA Services:**
-Information on products, services and technical solutions
-public works related information
-access current standards
-discussion forums
-product review and classification
-promotion of collaboration amongst infrastructure owners and the private sector

# Bowlby & Associates, Inc.

# FHWA TNM Training! Music City in the fall!

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"This course is a must for both beginners and advanced traffic noise modelers." -- Rob Kolmansberger, McCormick-Taylor

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"The step-by-step approach in this training course is incredibly helpful...the lecture and discussions are very thorough." -- Barbara McCallum, PBS&J

"Excellent! A must for any traffic noise analyst." -- Jeff Anderson, Carter & Burgess

"As a new noise analyst, I appreciated the knowledge and expertise of the instructors..." -- Vicky Jewell-Guerra, Idaho DOT

"I have attended many courses and seminars throughout my career and this course, based on quality and content, surpasses any others I have seen." -- Matt Riddell, Parsons Brinckerhoff

"Outstanding course. At the conclusion, any student should feel confident they know the features, capabilities, and limitations of TNM. -- Douglas Wolf, Vanasse Hangen Brustlin, Inc

"I wouldn't trade Bill or Roger for anyone..." -- Andy Kuchta, Michael Jr., Inc.

**Our first twelve courses were all sell-outs. Don't miss out, register early!**

**♫ October 9-12, Franklin, TN (Optional Traffic Noise Fundamentals, Oct. 7-8) ♫**

To register or for more information, contact us by: Phone: (615) 771-3006, Fax: (603) 676-2219,
e-mail: pbowlby@bowlbyassociates.com, or visit our web site: www.bowlbyassociates.com

**Bowlby & Associates, Inc., 504 Autumn Springs Court, # 11, Franklin, Tennessee 37067**