The Wall Journal™

THE INTERNATIONAL JOURNAL OF TRANSPORTATION-RELATED ENVIRONMENTAL ISSUES

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Mar/Apr 1999
May/Jun 1999
Combined Issue

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Federal Highway Adm.


Domenick Billera
New Jersey DOT


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Hervey Knauer
Environmental Acoustics


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Chmn., A1F04 Committee


Gary Figallo
Industrial Acoustics Co.

Like Jack Benny, The Wall Journal has just turned 39. It's time we honored the professionals whose photos appear here (and others to be also honored in coming Issues). Without their great support and cooperation we could not have weathered the seven years of buildiing this publication.
HAIL CAESARS!!!


Rudy Hendriks
Caltrans (Retired)


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MD State Hwy. Admin.


Hans Rerup
Pres., Durisol Int'l.


Richard Peppin
Pres., Scantek, Inc.


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Elvin Pinckney
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Iloyd Herman
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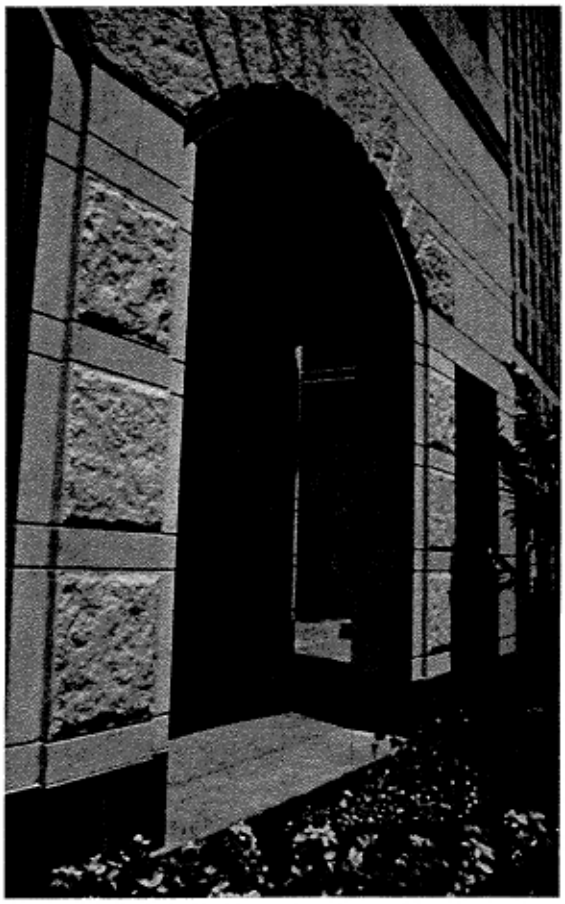
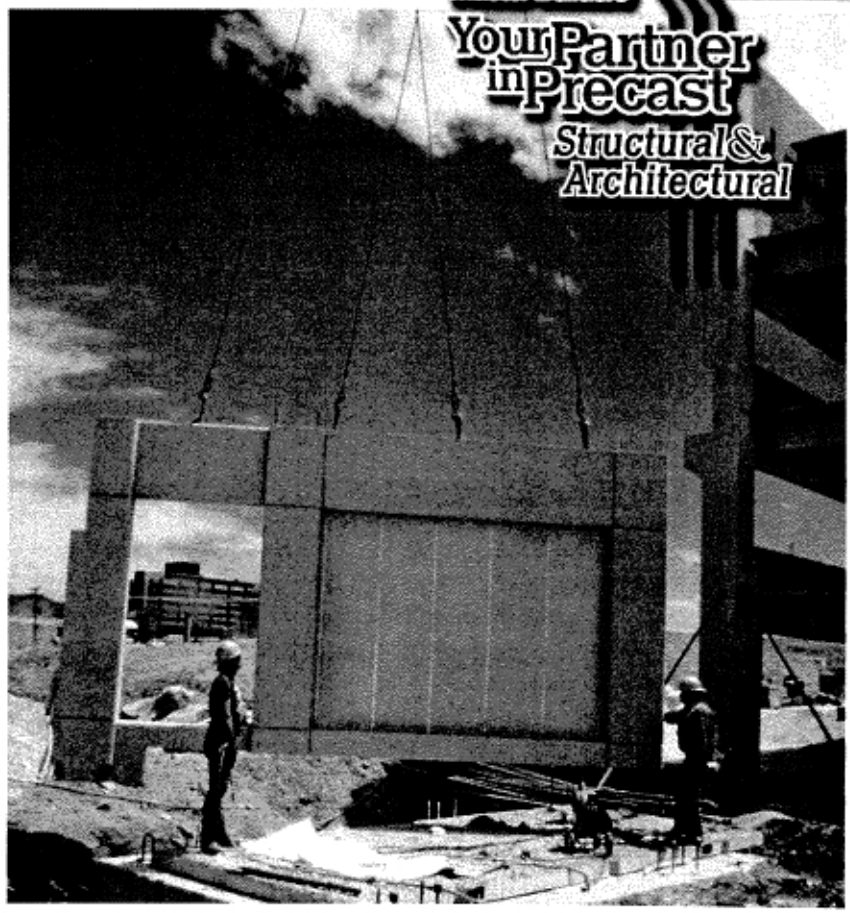
Grant Anderson & wife
HMMH Inc.


Roger Wayson
Univ. of Central Florida





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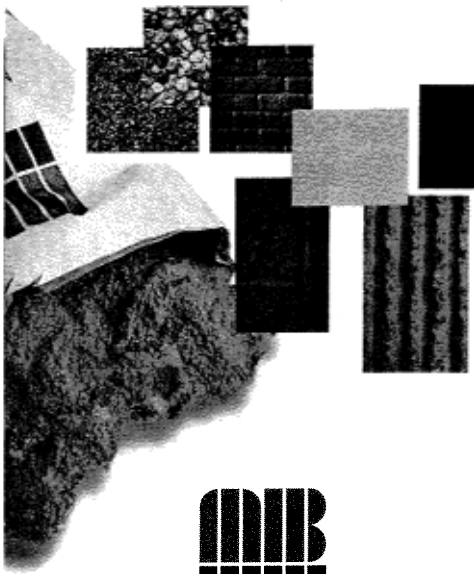

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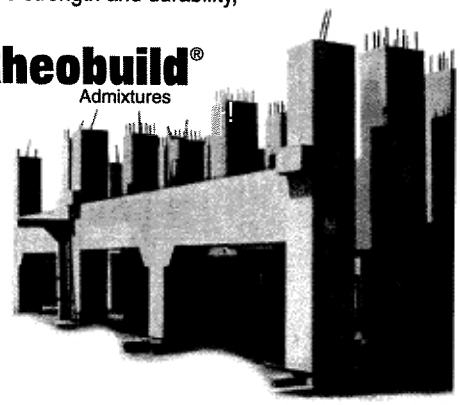

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The Wall Journal
The International Journal of Transportation-Related Environmental Issues
Volume VIII 1999
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Printed in the U.S.A.

Subscription and advertising information are shown on page 23. The Wall Journal is composed in its entirety on Apple Macintosh computers using Quark**XPress** electronic publishing software.

Promises, Promises...

★★★★★★★

A strange thing happened to me on the way to getting the March/April issue of The Wall Journal into production—I began to come unglued.

Nothing fell off of my body, my head was still sitting on my shoulders, my arms and legs were still attached, but I thought that I felt my body had quietly shifted into a lower gear—somehow adjusted the governor to a slower speed and a smoother ride.

But the ride began to break down. A lot of bumps came up on the road. I always avoided talking about medical problems—mine in particular, but even those of friends. Somehow, I felt those were intensively personal and not to be discussed in public.

Well, I am forced to reveal health problems now that you must be aware that The Wall Journal did not turn up in your mail box for some months now. Rather than have you think that the Journal had gone out of business, or that I had run away with the local barmaid, or that I had passed on to the big printing press in the sky.

I became partially disabled by a circulatory problem in my left leg, which resulted from a triple by-pass in 1994, when they removed a vein in my leg to create the by-pass to the heart. This caused me great distress, and in the past few months my weight dropped from my regular weight of 202 pounds to 164 pounds (I'm now back up to 170). My energy dissolved, and I just couldn't seem to get up and go, and the days just drifted away.

There. I've said it and I don't want any sympathy—I just feel that I owe my wonderful readers an apology and explanation and ask for your patience while I get the wheels rolling again.

That situation is being taken care of as we speak. I am presently in negotiations with people who wish to take over The Wall Journal. I don't think I have the spirit to continue publishing, and anyway I think younger and smarter hands can do a better job.

The people with whom I am negotiating are knowledgable professionals in the environmental issues which this publication is based upon. In fact, when the time comes, you will find them to be already well known to you. They are working professionals with great credentials, and have no manufacturing connections.

I will try to keep the Journal on schedule as much as I can, while the transaction is taking place. We will be very busy in turning over the business and know-how to the new owners. That will take some time, but eventually you will be dealing with new people in a new city. I will announce that time as soon as I can.

I will probably do one or more issues before the takeover. In the meantime, please stay with us. You don't want to miss the new Wall Journal.

Thanks for the good times.

El Angove

PRESS RELEASES & ANNOUNCEMENTS

FOR IMMEDIATE RELEASE

New Simple Sound Level Meter for Dummies

April 1999

Silver Spring, Maryland... Scantek, Inc. is pleased to introduce the new NA-26 from Rion. The inexpensive, high quality, sound level meter makes measuring simple.

The NA-26 has a 100 dB dynamic range and no range switch. The 30 dB to 130 dB is all you can get. And it is all most people want! Measure immediately after turn-on with only three keys operation. No skill required and, if you forget, instructions are inside a slide-cover.

With a 21 dBA noise floor, a 20-hour battery life, a lightweight small profile, and the ability to accept extension cables, the meter is perfect for environmental officers, police officers, general survey work, HVAC measurements, and industrial hygiene measurements.

For further information call or write: Richard J. Peppin, Scantek, Inc., 916 Gist Avenue, Silver Spring, MD 20910, phone 301 495-7738, fax 301 495-7739, or e-mail scantek@erols.com.

Acoustics and Your Environment

the basics of sound and highway traffic noise

a video production

A production by the
Federal Highway Administration
in association with the
Volpe Center Acoustics Facility
and
Out of the Box Productions

January, 1999

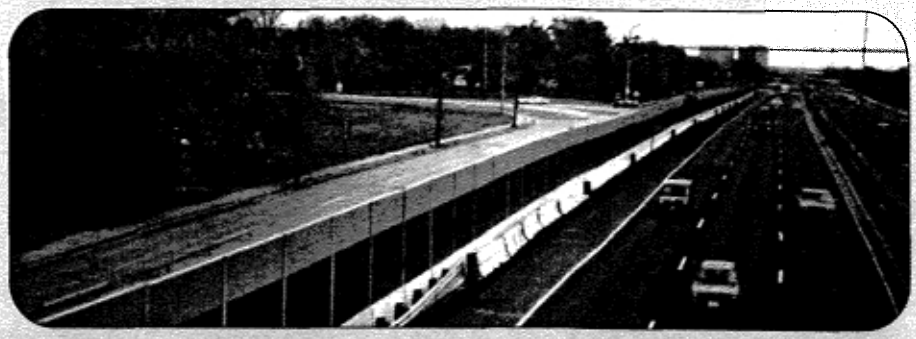
Video will automatically be sent to all State Departments of Transportation, all State Federal-Aid Division Offices, and the FHWA Resource Center Offices.

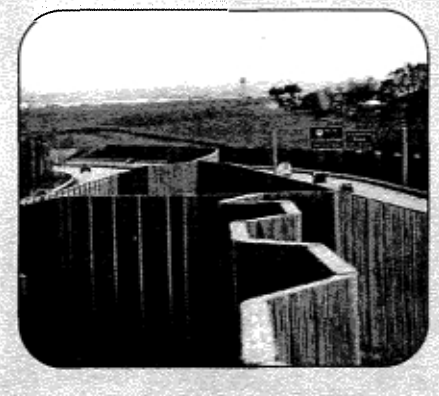
Public sector: can request a copy of the video from FHWA or Volpe Center while supplies last

FHWA
Office of
Environment and Planning
Bob Armstrong
202-366-2073

Volpe Center
Acoustics Facility
Judy Rochat
617-494-2372
rochat@volpe.dot.gov

Private sector: video will be available through NTIS
www.ntis.gov, 800-553-NTI
(available March 1999)





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- Choose either a 3 or 5 day session in the University of Louisville's campus, featuring state-of-the-art computers and economical campus housing.
- Benefit from the expertise of Drs. Lou Cohn and Al Harris, leading professionals who have trained over 500 highway noise specialists, including representatives from over 30 state highway departments.
- Learn from the latest developments in noise analysis, barrier design, and noise prediction software through curriculum designed to suit both beginning and experienced students.
- Also receive NOISE, the powerful, menu-driven software package with analysis capabilities not found in any other package. Software included with NOISE: STAMINA 2.0, OPTIMA, AUTOBAR, CHINA, REBAR, HICNOM, and LOS.

Now a complete **T**raffic **N**oise **M**odel Training Course!

- PLUS a fully operational MicroStation interface program to create/edit input files from roadway design files or to digitize from plan sheets (provided to participants at no additional cost)
- FHWA has mandated the TNM software be purchased from the McTrans Center at the University of Florida.
- **BONUS!** NOISE software will be mailed immediately upon receipt of your paid registration.

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Fee: $595 for the 3 day session, and $995 for the 5 day full course. Includes comprehensive course manual and NOISE software (with full technical support).

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July 12–16, 1999, TNM only session
July 14–16, 1999, full course

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UNIVERSITY of LOUISVILLE

TNM Tips

by Bill Bowlby, President
Bowlby & Associates, Inc.

STAMINA, *n.*, ability to withstand prolonged physical or mental

TNM offers several ways to create a run. One very useful method is to import existing STAMINA 2.0 files and then modify them as needed for TNM. Importing a STAMINA file is simple. Modifying the TNM run for proper calculations takes a little more thought.

STAMINA files are ACSII files with geometric and non-geometric data grouped in blocks by data type. For proper importing by TNM, the file format and syntax have to be identical to that of the official FHWA mainframe version of STAMINA. If not, the file may not be imported at all.

You begin importing by first creating a new run into which the STAMINA file will be imported. To do so, use the File, New menu choice. Name the run and then provide the Run Identification information under the Setup menu item. Next, under Setup, General, select either English or metric units for the run. These units do not have to be the same as in the STAMINA file. TNM determines the STAMINA file units by reading the first line of the file and converts them if needed.

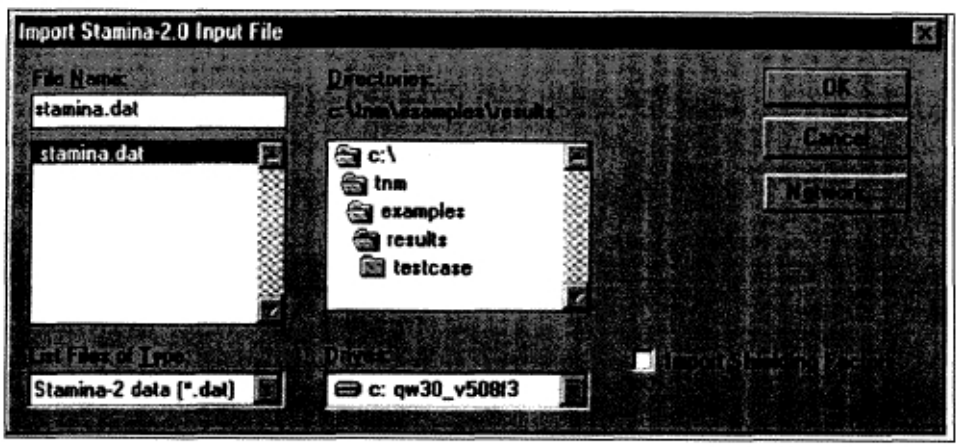
Importing the STAMINA file is easy: click on the File menu item and the Import menu choice. Click on the Import STAMINA-2.0 Input Files choice to open the Import dialog box. Double-click on the choices for Directories until you reach the subdirectory that contains the STAMINA file to be imported. Click on the file name (in the case shown, it happens to be STAMINA.DAT) and then click on the OK button to import the file. Quite quickly, TNM will read in the file.

Note the check box in the input dialog box for importing STAMINA shielding factors. This feature is currently inactive in TNM, but its absence is not a big loss. Typically in STAMINA, shielding factors are used to adjust predicted levels for shielding anticipated by rows of buildings or wide areas of dense coniferous trees. In many cases the values used were SWAG's (loosely translated, Scientific Wild-Eyed Guesses). However, TNM has geometric objects called building rows and tree zones with associated acoustical algorithms to take away a lot of the guess work. Even if the shielding factor import function was active, I don't think I would use it.

It's also worth noting that STAMINA alpha factors are not imported since TNM uses an entirely new way of computing ground effects. In my view, not having to wrestle with defining alpha and shielding factors for every roadway/receiver pair (and then having to insert new factors when you added roads or receivers) is a huge time saver, and worth the "price of admission" for TNM.

Before proceeding with any changes to the imported STAMINA file, you may wish to preserve the unchanged run and create a new run for the changed run. To do so, use the File, Save As command; remember, you must do this before you make any changes.

Next, turn on the point name display using the View, Show/Hide command. If you just created a new version of the run, remember to modify the run title under Setup, Run Identification. Now you are ready to check the file and make any needed changes.



First, consider if you need to modify the Default Ground Type to be other than TNM's default of Lawn. Don't go solely by the alpha factors in the STAMINA file, since it is common with STAMINA to specify hard site propagation for upper story receivers or elevated roadways even when the ground is soft. Note also that TNM lets you create a ground zone to allow easy specification of surfaces such as parking lots or bodies of water, while keeping the default for the rest of the run as Lawn.

Next, take a look at your receivers. In STAMINA you provide the elevation of the point at which you want the sound level predicted, typically 5 feet above the ground. TNM, however, needs the ground elevation at the receiver for computing ground effects. TNM automatically subtracts 5 feet from the STAMINA receiver Z coordinate for its Z(ground) value. However, if you had STAMINA receivers at heights other than five feet, you'll need to modify both Z(ground) and the Height Above Ground values in the receiver input dialog box. One exception: when two or more STAMINA receivers share identical X and Y coordinates, but have different Z coordinates, TNM assumes the lower receiver is 5 feet above the ground and automatically computes the corresponding Z(ground) and Height values for the higher receiver(s).

Also, look at the Levels/Criteria tab for each receiver and revise the default values as appropriate. Here's a trick that will save you a lot of time. After you create the TNM run, but before you import the STAMINA file, create a dummy receiver anywhere in the run. Then, enter your desired Levels/Criteria values in the receiver input dialog box. Next, make this dummy receiver the default receiver (click on it in the plan view, then choose the Input, Set Default Object menu item and answer "Yes" to the question). Now, when you import the STAMINA file, the receivers will inherit these values from the dummy receiver. Just remember to delete the "dummy' before calculations.

Next, take a look at your imported roadways. First, make sure the arrows on the ends of the roadway segments point in the correct direction of travel. If the STAMINA file had any of them in the reverse order, use the Edit, Reverse Direction command

(Continued next page)

to reorient them for proper computation of grade and/or flow control device effects by TNM. If you open the roadway input dialog box, you will notice that the STAMINA traffic has been assigned on a segment-by-segment basis. Remember that it is no longer necessary to start a new roadway when the traffic changes, such as at a ramp. You may actually now want to combine any such separate roadways that have been imported.

The key parameter to be assigned for the imported roadways is pavement width. TNM's predictions are sensitive to pavement width. We try to set the outside roadways pavement width so that the ed8e of the TNM roadway is at the outside edge of the paved shoulder. Don't worry about overlapping widths of parallel TNM roadways. TNM smooths out the overlaps into a continuous hard surface.

Now, take a look at the barrier data. The heights for the TNM barrier segments were created by subtracting the Z and ZO values at each barrier point in the STAMINA file. If you had defined a "ground line" barrier in STAMINA to represent the edge of shoulder of an elevated roadway, you can delete it in TNM and adjust the pavement width since TNM creates a terrain line at the edge of the TNM roadway. For any other STAMINA "ground line" barriers such as tops of cuts, turn on the TNM Snap tool, digitize a terrain line atop the ~ground line" barrier and then delete the STAMINA barrier.

Pay special attention to any large buildings that you had modeled in STAMINA as barriers. In STAMINA, it is customary to specify a building barrier by setting its ZO coordinates (base elevation) equal to its Z coordinates so that no square footage for the "barrier" is passed on to OPTIMA. However, TNM uses barrier base elevations as points for establishing the location of the ground. Open a skew view across the roadways, the building barrier and a receiver to see if you need to modify the building barrier. You'll need to determine the height of the building barrier and change the Z coordinate and Height for each point. While this method will still lead to a barrier surface area being computed for this "barrier, ~ you can avoid affecting the barrier cost data by leaving the unit costs for the building barrier at zero (on the More tab of the Barrier input dialog box).

One other item to look at is modeling noise barriers on roadway structures. In STAMINA, the so-called structure barriers are not allowed to cross with roadways as seen in a plan view. As a result, these situations are typically modeled by creating a small gap in the roadway (actually creating two roadways separated by the gap) to allow the barrier to pass "through." However, in TNM, structure barriers may cross over roadways in plan view, allowing you to get rid of those gaps. In TNM, you may also designate roadway segments as "on structure," allowing sound to pass under them, and allowing them to cross other roadways at different elevations. Additionally, in TNM, you may make the structure barrier designation on a segment by-segment basis. In this manner, you do not need to create a separate barrier as a structure barrier, unless you want to assign a separate cost to the structure barrier.

The last thing you need to do in finalizing your TNM run is to add any needed terrain lines, building rows, ground zones and tree zones. Then, you are pretty much ready to run TNM. But remember to always check all input tables closely, as well as the perspective and skew views. In this manner you have the best chance for uncovering data problems that might not get picked up by the Input Check.

One last thought: if the TNM run bombs with a floating point error, you may need to transform your coordinate system to values closer to the origin. See last issue's column for some ideas on this problem.

✲ *Keep those tips up!*

Ed Hipolito of A.A. Webb Associates and Todd Busch of Acentech collaborated on TNM traffic for CNEL and DNL: TNM divides your total daily traffic into equal amounts for day and night for DNL (and evening, if CNEL), which would rarely happen, if ever. Also, the vehicle type percentages must sum to 100% for each time period (each column). To get around these problems, create a user-defined vehicle type called "Auto" with negative emission levels. Set the minimum level to -60, for example, leaving reference level and slope at 0. Then, determine from outside data the needed volumes for each actual vehicle type for each time period. Sum these volumes by period. Take the largest sum and at least double it (for DNL) to get a dummy ADT (at least triple it for CNEL). Then, adjust the percentages for each time period to get the needed volumes for each actual vehicle type, assigning the extra volume in each period to the new vehicle type. Carefully document the actual data and the adjustment process.

Question of the millenium from Mike Shearer of Texas DOT:
Do you have to have a barrier, if only a dummy, zero height barrier) in the STAMINA file in order for TNM to import it properly? When I try to import a STAMINA file with no barrier "3,0", TNM shuts down ("error in application").

Mike, if the STAMINA file has a "3,0" data block header line in it for a "no barriers" file, TNM won't import the file. If there are no barriers, simply skip directly from the "2" block for roads to the "5" block for receivers. Also, note that multiple STAMINA imports into the same run work fine. (Thanks to Clay Patton of Bowlby & Associates for checking this out.)

Send your questions and bps to TNM Tips, Bowlby & Associates, Inc. Two Maryland Farms, Suite 130, Brentwood, TN 37027. wbowlby@bowlbyassociates.com.

■.

Bill Bowlby co-teaches TNM training courses with Dr. Roger Wayson of UCF. When not TNM-ing, Bill cheers quietly for Wooly Bully, the National Champion Beefalo Bull from his wife's business, Black's Ferry Beefalo Farms. Watch it now, watch it now, here he comes!

Words From The Wise

"I like thinking big. If you're going to be thinking anyway, you might as well be thinking big."

— **Donald Trump**

"One of the great discoveries a man makes, one of his great surprises, is to find he he can do what he was afraid he couldn't do."

— **Henry Ford**

Words From The Wise

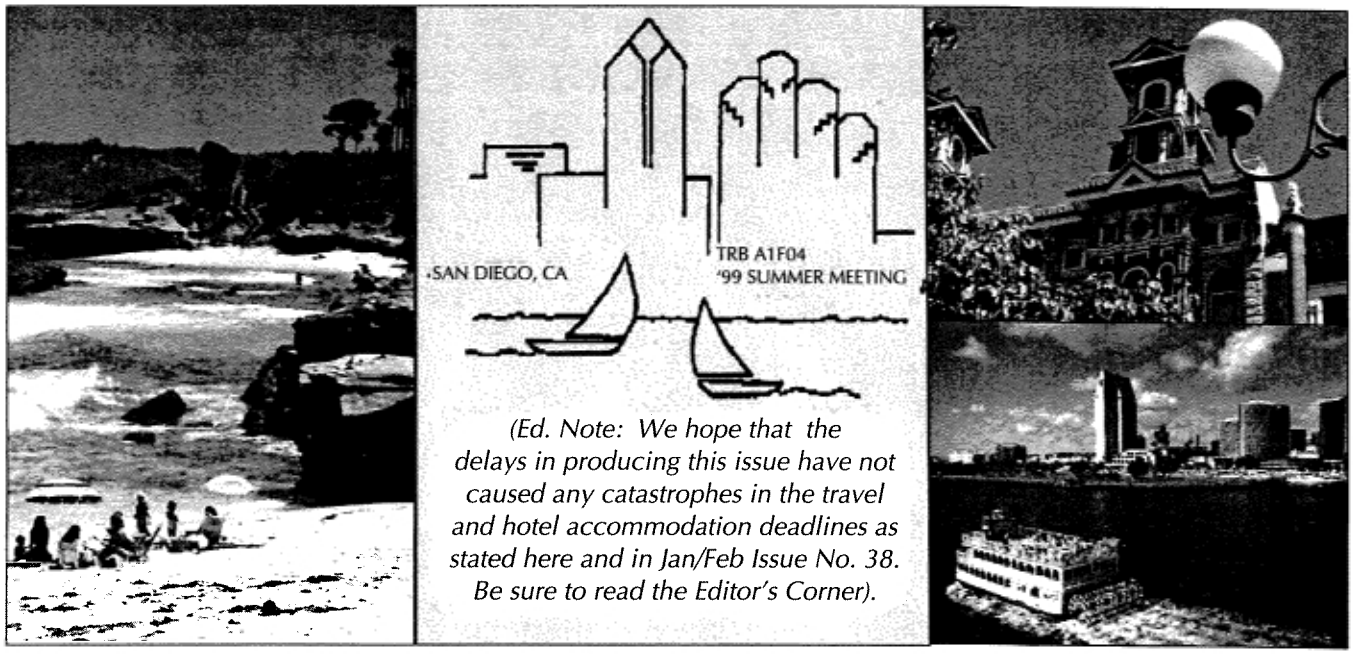
"You may be disappointed if you fail, but you are doomed if you don't try."

— **Beverly Sills**

"I've always wanted to be somebody, but I see now that I should have been more specific."

— **Lily Tomlin**

TRB A1F04 Committee Summer Meeting



(Ed. Note: We hope that the delays in producing this issue have not caused any catastrophes in the travel and hotel accommodation deadlines as stated here and in Jan/Feb Issue No. 38. Be sure to read the Editor's Corner).

You are invited to attend and participate in the activities of the Transportation Research Board's AlF04 Committee Summer Meeting on Transportation Related Noise and Vibration, to be held **August 1 to 5, 1999, San Diego, California**. The meeting will focus on current topics relating to rail/transit, aircraft, and highway traffic noise and vibration. Also featured at this meeting will be numerous exhibits, field trips, and one day devoted to a TNM® noise prediction model workshop.

This year the meeting will be held at the **Doubletree Hotel San Diego Mission Valley**. A block of rooms had been reserved for meeting participants at a special rate of $102.00 plus tax for both single and double commodations, per night. The rate and room availability is guaranteed up to *June 16, 1999*, which means that by the time you read this, it will probably be too late. So, if you really want to attend, please make your own hotel reservations and be sure to mention that you are attending the Caltrans/TRB A1F04 meeting. You might get lucky. For reservations call **(619) 297-5466**. Although there is a toll free number (800) 222-TREE, the hotel recommends calling the (619) number, which has the up-to-date information on the meeting and availability of the special rate rooms. Registration cost is $185, which includes all presentations, handouts and technical material, field trips, etc.

Please forward all requests for further information to:

Rudy Hendriks (916)653-2271; E-mail: rudy_hendriks@dot.ca.gov
Or: Joya Gilster (916)654-6362; E-mail: joya_gilster@dot.ca.gov

California Department of Transportation Fax: (916) 653-7757
Environmental Program, Mail Station 27
P.O. Box 942874, Sacramento, CA 94274-0001

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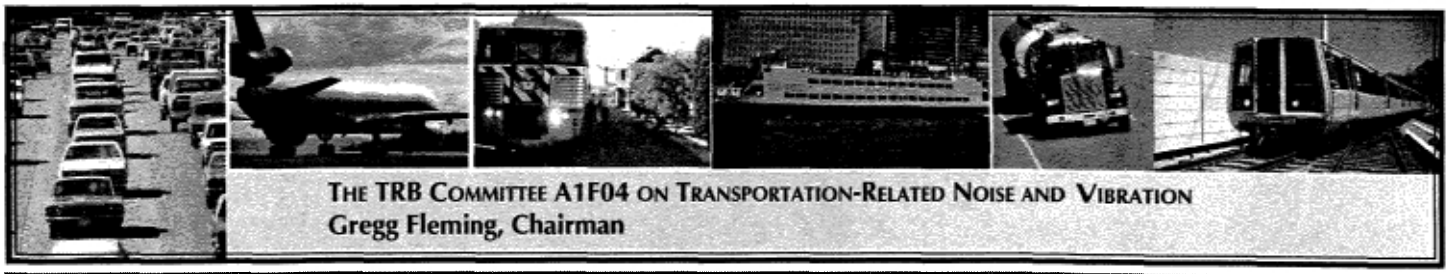


THE TRB COMMITTEE A1F04 ON TRANSPORTATION-RELATED NOISE AND VIBRATION
Gregg Fleming, Chairman

THE 1999 SUMMER CONFERENCE OF THE TRB A1F04 COMMITTEE ON TRANSPORTATION-RELATED NOISE AND VIBRATION

The Technical Agenda for Presentation of Professional Papers, Tours & Exhibits for the Summer Conference in San Diego, California, Sunday August 1 to Thursday August 5, 1999

TENTATIVE TECHNICAL AGENDA

Note: The technical program was not yet finalized at press time. The agenda shown below is subject to changes. The presenters were not yet notified of the dates and times of their presentations. The final Agendas will be included in the registration packet at the TRB A1F04 registration desk in the hotel.

TRB A1F04 Committee on Transportation Related Noise and Vibration
1999 Summer Meeting
Sunday August 1 to Thursday August 5, 1999
Doubletree Hotel Mission Valley,
San Diego, California
Registration in the South Foyer, 5:00 - 8:00 p.m.
Welcome Reception in Grand Ballroom I,II,III
6:00 - 11:00 p.m.
Exhibits in Grand Ballroom VI,VII,VIII

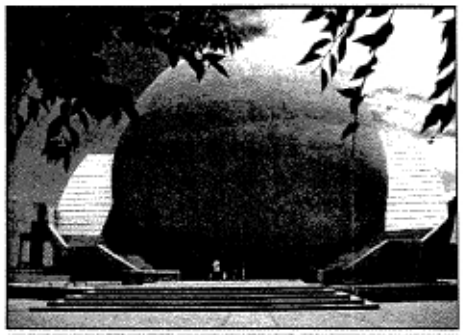
MONDAY, August 2, 1999
7:00 - 12:00 a.m. — Registration
7:00 a.m.— Exhibits open
7:00 - 8:00 a.m.
Continental Breakfast in the West Foyer
8:00 a.m.
Welcome, Opening Remarks and Announcements
8:30 a.m.
Caltrans Traffic Noise Analysis Protocol
by Keith Jones, Caltrans Sacramento Environmental Program
9:00 a.m.
Urban Canyon Rail Noise Modeling
by Paul Burge, Acentech Inc.
9:30 a.m.
Traffic Noise Assessments for Land Subdivision Projects
by Alexander Segal, County of San Diego
10:00 a.m.
Refreshment Break, Visit Exhibits
10:30 a.m.
An Aircraft Noise Model for Land Use and Operations Planning
by Neil Standen
11:00 a.m.
Examination of the Lateral Attenuation of Aircraft Noise
by Eric Stusnick, Wyle Laboratories
11:30 a.m.
Updated Lateral Attenuation in FAA"s Integrated Noise Model
by Gregg Fleming, Volpe National Transportation Systems Center
12:00 p.m.
Lunch (on your own)
1:00 - 4:30 p.m.
Tour of San Diego Airport & Noise Control Facility

TUESDAY, August 3, 1999
7:00 - 12:00 a.m. — Registration
7:00 a.m. — Exhibits open
7:00 - 8:00 a.m.
Continental Breakfast in the West Foyer
8:00 a.m.
Analytical and Experimental Research on Tire/Pavement Noise at UC Davis
by Dean Karnopp, Transportation Noise Control Center, Dept. of Mech. & Aero., University of California, Davis
8:30 a.m.
High-Speed Vehicle Aerodynamic Noise Research at UC Davis
by Nesrin Sarigul-Klijn, Transportation Noise Control Center, Dept. of Mech. & Aero., University of California, Davis
9:00 a.m.
Noise Barrier Design for the Long Island Expressway
by George Penesis, Konheim & Ketcham
9:30 a.m.
Insertion Loss of Berms vs. Walls
by Todd Busch, Acentech Inc.
10:00 a.m.
Refreshment Break, Visit Exhibits
10:30 a.m.
Test Signals and Processing Methods to Investigate Noise Reflections
by Lloyd Herman, Ohio University
11:00 a.m.
Do Sound Walls Along Freeways Increase Noise Levels? Results of Field Measurement Programs
by James Reyff, Illingworth & Rodkin, Inc.
11:30 a.m.
See-through Sound Walls
by Richard Chavez, San Diego Association of Governments
12:00 p.m.
Lunch (on your own)
1:00 - 4:30 p.m.
Glass Noise Barrier Tour

WEDNESDAY, August 4, 1999
7:00 - 12:00 a.m.— Registration
7:00 a.m. — Exhibits open
7:00 - 8:00 a.m.
Continental Breakfast in the West Foyer
8:00 a.m.
Carmelite Monastery Traffic Noise Study
by Doug Barrett, Harris Miller Miller & Hanson
8:30 a.m.
Annoyance Due To Locomotive Warning Horns
by David Coate/James Cowan ñ Acentech Inc.
9:00 a.m.
TNM Emission Levels: Effects of Ground Type at the Measurement Site & After Adjustment for Pavement Type/Age, Vehicle Sub-type/Speed, and State-to-State Differences
by Grant Anderson, Harris Miller Miller & Hanson
9:30 a.m.
The acoustical algorithms in TNM version 1.0: Highlights, Strengths, and Weaknesses
by Judy Rochat, Volpe National Transportation Systems Center
10:00 a.m.
Refreshment Break, Visit Exhibits
10:30 a.m.
Validation of the FHWA TNM Model Under Australian Conditions
by Neil Huybregts, Marshall Day Acoustics, Collingwood, Victoria, Australia
11:00 a.m.
On Temporal Sampling Strategy in Community Noise Measurement
by Richard J. Peppin, Scantek, Inc.
11:20 a.m.
Highway Traffic Noise As a Function of Congestion
by Dave Buehler, Jones & Stokes and Associates
11:40 a.m.
17th Street Causeway Construction & Noise Monitoring Program
by Bernard Kinney Jr., Law Engineering and Environmental Services
12:10 p.m.
Lunch (on your own)
1:30 - 4:30 p.m.
Trolley Tour
5:00 p.m.
Exhibits Close

THURSDAY, August 1, 1999
7:00 - 8:00 a.m.
Continental Breakfast in the West Foyer
8:00 a.m.
TNM WORKSHOP (Agenda not yet set)
10:00 a.m.
Refreshment Break
10:30 a.m.
TNM WORKSHOP (Agenda not yet set)
12:00 p.m.
Lunch (on your own)
1:00 p.m.
TNM WORKSHOP (Agenda not yet set
2:30 p.m.
Refreshment Break
3:00 p.m.
TNM WORKSHOP (Agenda not yet set)
4:30 p.m.
Wrap-up, Introduce next year's conference
5:00 p.m
End of TRB A1F04 Summer Meeting

Seaport Village combines shopping, dining, fun and great views of San Diego Bay.



The Tijuana Cultural Center brings to life Mexico's colorful history.

Anza-Barrego Desert State Park provides visitors with outdoor beauty on 600,000 acres.

If you are attending the Summer Conference of the TRB A1F04 Committee, here are some of the interesting things to do and see in the San Diego Vicinity:

The Gaslamp Quarter This 16-block National Historic District features restored Victorian structures, galleries, shops and approximately 100 restaurants. A walking tour of the area, including haunts of Wyatt Earp and the 150-year-old William Heath Davis House, is offered Saturdays at 11 a.m. Gaslamp Quarter open daily, admission free.

Mission Basilica San Diego de Alcala The first Franciscan mission in California, built on Presidio Hill in 1769 and moved to its present site in 1774. Open daily, 9 a.m.-5 p.m. Admission $2.

Seaport Village This quaint, turn-of-the-century-style village features unique shops, cozy cafes, fine restaurants, a charming 1890's working carousel and strolling entertainment. Nearby, check out Seaport Bike & Surrey Rentals for recreational options. Seaport Village open daily 10 a.m. to 9 p.m., admission free.

Balboa Park San Diego's geographic and cultural hub, houses many of the city's best museums and theaters, a world-famous zoo and numerous cultural attractions. All are set amid 1,200 acres of beautifully landscaped greenery where festivals and free concerts take place year round. You will find a variety of museums, including Timken Museum of Art; San Diego Natural History Museum; San Diego Aerospace Museum and many others. Nature lovers will appreciate the Japanese Friendship Garden and outdoor lily pond. Open daily, admission free.

San Diego Zoo The zoo is known for its more than 4,000 rare and endangered animals. New residents include the giant pandas, Shi Shi and Bai Yun. Many of the zoo's residents are displayed in state-of-the-art natural habitats. Open daily 9a.m. to 9 p.m. Admission $16 adult, $7 children.

San Diego Museum of Art The museum's holdings are made up of more than 10,000 works of art spanning Egyptian and pre-Columbian periods to the 20th century, and include masterpieces by el Greco, Goya, Zurbaran, and the only disputed Giorgione in America. Contemporary Californian art by Ruscha and Hockney; and archaic cloisonne, ivories, jades, and bronzes from East Asia. In Balboa Park, open Tuesday-Sunday, 10 a.m.-4:30 p.m. Admission $7.

Sea World Adventure Park Located in Mission Bay, the park features more than 20 major attractions. This is your chance to see this watery menagerie in their "natural surroundings". Park highlights include Shark Encounter, a fascinating exhibit with a submerged viewing tube that allows guests to enter the sharks' habitat. Or there is also Rocky Point Preserve, the world's largest dolphin and sea otter habitat. The park opens daily at 10 a.m. to 9 p.m. Admission, $6 parking and $38 adult, $29 children.

Old Town State Historic Park A park devoted to the preservation of life in early San Diego. Many original 1800s structures in the six-block park have been reconstructed or restored, and interpretive displays, points of interest, quaint shops, and early-California-style restaurants illustrate the changes that have occurred. Bazaar del Mundo is a south-of-the-border-style shopping and divine village, complete with margaritas, mariachis, and hand-crafted treasures from around the world. Open daily, 10 a.m. to 9 p.m., admission free.

The San Diego Maritime Museum The museum, anchored along Harbor Drive, is a good place to begin exploring the waterfront. Consisting of the century-old windjammer Star of India, the steam ferry Berkley, and the luxury yacht Medea, which showcase San Diego's rich maritime past. Open daily 9 a.m.-8 p.m. Admission $5.

La Jolla

Birch Aquarium at Scripps The world's largest bronze whale sculpture graces the entrance to the aquarium, part of the Scripps Institution of Oceanography at the University of California San Diego. Featured are more than 30 tanks displaying various habitats, a 55,000-gallon kelp-forest exhibit and the Exploring the Blue Planet museum, the country's largest museum of oceanography. Open daily 9 a.m. to 5 p.m. Admission $7.50.

Carlsbad

{NEW!!} Legoland California The only park of its kind in the United States, is being created by the Danish toy manufacturer, Lego. The 128-acre park promises to be full of fun and surprises. It's designed to stimulate the imagination. Six distinctive play areas will feature unique attractions, family rides, restaurants, opportunities to build and areas to explore. Open daily after April 1999.

Here's what the local weather and travel people have to say about San Diego:

San Diego's superb climate (one of the best in the world) makes this city and its surroundings a perfect vacation spot. In August the days are frequently quite warm, while the evenings are cool. The average daily high temperature is 78° F, the average low is 67. The sun shines 70% of the time, average rainfall is 0.11". A marked feature of the area's climate is the wide variation in temperature within short distances due to the topography of the land. You can enjoy coastal, mountain, and desert environments all in the space of one day. Bring casual sportswear and a jacket or sweater for the evening. ■

Transportation Research Board Annual Meeting, January 10-14, Washington, D.C.
Minutes of the A1F04 Meeting

by Gregg Fleming, Chair

The TRB Annual Meeting, held from January 10-14, 1999 was its usual success, with over 8000 registered participants. Committee AlF04 sponsored many high quality presentations and papers, as well as three very productive committee meetings.

In reviewing this year's abstracts, you may notice that the so-called "official" TRB papers were down in number - we only had five papers. Unfortunately, Jon Williams of TRB has indicated to me that this was a general trend in the environmental area this year. In an effort to boost the numbers for next year, we are tentatively planning at least one formal session on rail noise (it's long overdue), and we may have a session on construction noise (there seems to be a lot of ongoing work in that area).

It was clear to me as I sat through this year's noise-related sessions that it is time for AlF04 to revisit and update our current research needs in the three modal areas. The plan is to coordinate this effort with my three subcommittee chairs, who will in-turn coordinate with various members of each subcommittee. Hopefully a new set of needs will be available for review by the full committee later this year.

With the year 2000 now on the foreseeable horizon, it seems like everyone has there own ideas for bringing in the new millennium -- TRB is no exception. There are two notable related activities. First, TRB is planning on publishing a 3000-word paper from each technical committee. The focus of the paper will be the current state-of-the-art in each particular functional area, and the expectations for the future. Initial drafts are due to TRB in May. I plan to coordinate this effort with my three subcommittee chairs.

The second new-millennium focus has to do with a summer conference being planned for Pittsburgh in July of 2000. The current thinking is that between 12 and 16 environmentally oriented committees will meet jointly in an effort to exchange ideas. By assembling various environmental committees the hope is that there will be a "cross-fertilization" of ideas and issues. The current plan is that committee AlF04 will fully support this meeting, and possibly even put together a noise-related session; however this meeting will not preclude the AlF04 Summer Meeting. A draft agenda for this meeting is contained elsewhere in this Newsletter.

Somewhat in step with TRB's charge towards the new millennium, AlF04 is about to begin the process of launching their own web site. Currently about 20 to 30 percent of TRB committees have their own site. Many AlF04 members have emphasized the value of a site where they could view committee newsletters, research history, etc. The hope is that a "strawman" site will be up and running by summer. Soren Pederson of the Ministry of Transportation is taking the lead role in this effort. As always, I'd be interested in any ideas you might have.

In an effort to bring more acceptance from the academic community to the Transportation Research Record, TRB plans to rename the yearly publication. In addition, beginning this year, TRB plans to support a "double-blind" review process, i.e., in addition to the author not knowing who reviewed a paper (as is the case now), the reviewer will not know who wrote the paper they are reviewing. Remember the TRB hard deadline for paper submission is August 1.

Congratulations to Eric Stusnick!!! Eric was officially named the first AlF04 committee member with emeritus status. Beginning in 1998 TRB initiated a new program for long standing, active members of a committee - emeritus status. Eric was one of only 26 people (in all of TRB) to be granted emeritus status in the first year of the program. For those of you interested in nominating a particular individual please contact me directly. Given the history of AlF04, its long-standing membership, and its many varied contributors I expect to be able to nominate at least one individual each year.

Also congratulations goes to Lloyd Herman and Srikanth Seshadri of Ohio University and Elvin Pinckney of Ohio DOT for their award-winning paper entitled "Placement of Sound-Absorbing Materials to Control Traffic Noise Reflections at Highway Underpass." This is the second time in three years Lloyd and Elvin have been a part of the AlF04 best paper award.

On Thursday, the 14th AlF04 hosted a very productive workshop on tire/road noise. Without going into too many details, the result of the workshop was the establishment of a tire/road noise working group to be chaired by Roger Wayson of the University of Central Florida. Other members of the working group include: Robert Bernhard of Purdue University, John Jaeckel of HNTB, Brian Landsberger of the University of Texas and Ken Polcak of the Maryland State Highway Administration. The first task of this working group is to develop a needs-oriented tire/road noise survey which will be distributed to the state highway agencies in the next couple of months. The working group will present the results of that survey at the upcoming summer meeting in San Diego, CA. Anyone that would like further details on the workshop may contact me directly.

Speaking of the Summer Meeting it is scheduled for August 1 through 4, 1999. CALTRANS is hosting the meeting which will be held at the Doubletree Hotel in Mission Valley, San Diego. Rudy Hendriks, now a retired annuitant for CALTRANS is planning an exceptional mix of technical and social activities. For those interested AlF04 is also tentatively planning for August 5 a workshop on the FHWA's Traffic Noise Model (TNM). The specific format and objectives of the workshop will be established soon. Look for more information on the Summer Meeting in this newsletter.

AlF04 Committee Meeting Minutes

(Wednesday, January 13, 1999)

Call to Order - Gregg Fleming (Volpe Center)

Committee Chairman, Gregg Fleming, called the meeting to order.

Welcome and Introduction of Members and Guests

Gregg Fleming asked for a round-table introduction. He passed out the meeting's agenda and the TRB roster for attendees to confirm and check-off their names. Gregg then announced that Eric Stusnick (Wyle Laboratories) was officially given emeritus status during the TRB

chairwoman's luncheon earlier that day. Gregg read briefly from the nomination letter which he'd submitted to TRB describing Eric's dedication to the AlF04 Committee. Wayne Kober (AlF00 Chairman) made a presentation to Eric and also spoke a few congratulatory words.

Statements by Jon Williams, TRB Staff Liaison

Regarding this year's Annual TRB meeting, Jon Williams stated that there were over 80~0 registered participants. In addition, the CD-ROM, which was distributed in the TRB package, contains more than 90 percent of the papers submitted this year. The remaining papers were available at the Marriott Hotel. Jon then made several announcements:

(1) TRB (National Research Council) has moved from North Georgetown to Judiciary Square.

(2) Committee AlF04 received a score of 3.6 out of a possible 4.0 in TRB's triannual committee self evaluation. He congratulated our committee for the high score.

(3) TRB is planning to publish a 3000-word "millennium" paper from each committee. The focus of the paper will be "what's the current state-of-the-art" and "what does the future hold." Draft papers are due in by May 1, 1999.

Bill Bowlby (Bowlby & Associates) told Jon that during the Rail noise subcommittee meeting, several work proposals were discussed. Should those proposals be directed to both the transit authority and the FRA or each separately? Jon said that he'd look into the matter and give his answer to Gregg to relay to the committee.

Review of Minutes from 1998 Meeting

by Gregg Fleming

Gregg Fleming said for those interested in the meeting minutes, they were published in last year's committee newsletter.

Reports

Summer 1998 Meeting -

Gregg Fleming

Gregg Fleming recapped the 1998 summer TRB conference that was held in St. Petersburg (Florida) and hosted by Win Lindeman (Florida DOT), PBS&J, Inc., Transportation Solutions, Inc., and URS Greiner, Inc. There were 114 attendees, 18 presentations, 2 workshops, and 2 technical tours.

1998/1999 Activities & Sessions -

Gregg Fleming

Gregg Fleming re-emphasized the need for volunteers to assist the subcommittee chairs in preparing the "millennium" paper. He asked Jon Williams if the 3000-word limit could be increased because our committee has 3 subcommittees. Jon will check on it. Gregg would like to submit a draft to TRB by mid to late March. Wayne Kober told Gregg that his submission should be given to Tom Weck. Larry Finegold (U.S.A.F) will consult the FAA's recently published research agenda and the TRB checkbook for issues to include in his submission to Gregg.

Gregg next spoke about possible changes to the TRB paper review process. To increase acceptance of TRB publications by the academic community, he asked members to give their opinions on a double-blind review process. Roger Wayson (University of Central Florida) said that a double-blind review is looked upon as more stringent. TRB's plan to change the name of the Transportation Research Record to (possibly) the Transportation Research Journal would also help. Bill Bowlby and Lloyd Herman said that it was not an issue at Vanderbilt University and Ohio University, respectively. B.J. Lansberger (University of Texas) said that he's reviewed Acoustical Society of America (ASA) papers where he knew who the authors were. Jim Nelson (Wilson, Ihrig & Associates) agreed. Ulf Sandberg (Swedish National Road & Transport Research Institute) suggested that the process be voluntary. This approach was agreed to. Bob Hixon (FAA) pointed out that because the noise community is small, most can figure out who the authors are anyway. Jon Williams said that those papers that underwent a double-blind review could be highlighted in the TRB publication.

A draft agenda for the TRB year 2000 environmental conference will be included in the committee spring newsletter. The conference will take place July 22-26 at the Hilton Pittsburgh & Towers in Pittsburgh. Based on last year's consensus, it was agreed that our summer TRB will still take place, but the environmental conference would also be promoted, where 600-700 attendees are expected. Wayne Kober said that TRB is trying to encourage subcommittees to get together more. Jon Williams is looking into space at the Hilton Pittsburgh either the week before or after to possibly hold our summer TRB (other cities are also being looked into). Bill Bowlby pointed out that an environmental conference held in Illinois focused on an interest common to many groups which allowed different groups to come together, form break-out group sessions, then re-convene and report back on discussions.

Lastly, Gregg discussed how members could nominate other members for emeritus status. He would make Eric Stusnick's nomination letter available as a model for other nominations. Currently, 10-12 members are probably eligible. He would like to see one member nominated per year. Further, the 18-year official committee membership requirement is not firm - active participation is an acceptable surrogate. Wayne Kober noted that TRB does not want to have an individual with emeritus status in more than one committee.

Aircraft Noise Update -

Larry Finegold (U.S.A.F.)

Two presentations were given in the aircraft noise subcommittee meeting involving software that describe aircraft noise - one heavy in graphics and the other focusing more on acoustics. Also discussed, the Integrated Noise Model (INM) Version 6.0 is soon to be released; and NOISEMAP Version 6.0 will also be released soon. A $1.95 billion NASA/FAA research program on.aircraft noise is underway. New certification requirements are also being developed for general aviation aircraft. The FAA is expected to release an environmental research report soon, as well.

Larry then began to stress the importance of the human health issue as affected by noise, as well as the effects of noise on animals and structures. Two new ANSI standards have recently been released: ANSI S12.9-1996/Part 4, which covers the use of exposure levels, and ANSI S12.9 1998/Part 5, which describes the measurement of community noise. An ANSI standard on the effects of noise on sleep disturbance is approximately 90% completed and is expected soon. Bill

Bowlby asked if Federal agencies are involved in the ANSI review process. Larry said that, generally, they are not. Bob Hixon suggested that everyone should check out the web-site of the American Planning Association for the latest land-use planning info (WWW.PLANNING.ORG/INDEX.HTML) He also announced that the ISIS software, which was demonstrated during the subcommittee meeting, will be available on a CD-ROM in about 6 months with supplemental tools provided by Dubbink, Inc., which caters the software to the user's needs.

(Continued next page)

A1F04 Committee, *from page 13*

Guided-Transit Noise Update -
Jim Nelson (Wilson, Ihrig & Assoc.)

During the guided transit subcommittee meeting, Jim Nelson had asked attendees to brainstorm rail related research and also asked for volunteers to prepare work proposals for the research. The following proposals will be prepared: horn-noise descriptors by Dave Coate (Acentech, Inc.); active-noise control for horn noise by Mike Staiano (Staiano Engineering); and vibration effects on structures by Dave Coate. A joint meeting between the rail subcommittee and the grade-crossing subcommittee (A2M05) was proposed for 2000 to discuss the effects of the lifting of the whistle ban in some communities. Jim Sowell (L.A. County Metropolitan Transportation Authority) gave an update on how rail project construction noise is being regulated. Carl Hanson (HMMH Inc.) announced that the new FRA guidance manual will be available in 2-3 weeks. He also spoke about the high-speed rail research that was presented at a recent conference he and Jim had attended in France. Roger Wayson mentioned that a beta version of his rail noise model has been used in Chicago and in some areas in Florida. Due to the reduced number of papers submitted for rail subcommittee session, Gregg Fleming and Jim had discussed the possibility of having a separate rail/transit noise session next year. Further, this session could be a mixed paper/presentation session. For those who are unable to submit a paper by the TRB August 1 deadline, the option of giving a presentation is available. A session devoted to construction noise was also discussed. Gregg would like to generate interest and presentations for more TRB sessions.

Highway Noise Update -
Ken Polcak (MSHA)

During the highway noise subcommittee meeting, (1) Cynthia Lee (Volpe Center) announced the availability of the recently released TNM Look-Up Tables; (2) Roger Wayson announced the availability of the NCHRP Synthesis report on tire-pavement noise; (3) Judy Rochat (Volpe Center) presented several excerpts from the soon-to-be available Acoustics Video; (4) Richard Price (U.S. Army) gave a presentation on automobile air bag noise; and (5) several presentations were given on TNM followed by an open discussion of user experiences with the new software.

Bob Armstrong (FHWA) said that there is a proposed rule-making in the Federal Register to change two of the outdated technical references to the new measurement manual (Measurement of Highway Related Noise) and the new noise prediction model (the model reference will be written in general terms so that frequent Register updating will not be necessary). Tri-annual requests have been sent to the state DOT's for their barrier listing updates. A new FHWA compiled listing is expected to be released next fall. Bob also sent requests to FHWA division offices for contact people with success stories in land-use planning, noise abatement programs, and source-control projects. This information may be compiled into an FHWA brochure. FHWA has been re-organized - the regional offices have been reduced to a division office in each state and four resource centers in the country. Bill Bowlby asked if there were any new documentation being posted on the FHWA website. Bob said no, but WWW.NONOISE.ORG posts many FHWA documents and may be linked to the FHWA website in the future.

Cynthia Lee then asked Harvey Knauer (Environmental Acoustics, Inc.) and Soren Pederson (Catseye Services) to give a brief update of the status of the

(Continued next page)

A1F04 Committee, *from page 15*

FHWA barrier design manual, video, and CD-ROM. A draft of the barrier design manual and video script have been submitted to the Volpe Center. Harvey and Soren had interviewed 15 state DOT's, several Canadien provinces, and barrier manufacturers for their experiences on every aspect of barrier design. The CD-ROM will contain scanned state noise policies, more photos, and state contact personnel. Harvey then assured Jay Waldschmidt (Wisconsin DOT) that the photos will have barrier design information, but not location information.

Presentation

Two presentations were given: (1) A Proposal for a Public Education Program in Transportation Noise (by Jim Cowan of Acentech Inc.); and (2) Future Transportation Noise Research and Policy Agenda (by Larry Finegold of U.S. Air Force).

Following Jim's presentation, an informal discussion began on how to secure funding for such a program.

Domenick Billera (New Jersey DOT) suggested giving public meeting participants a copy of a CD-ROM or video to take home prior to the public meeting. Larry suggested that there might be funding from research in occupational noise and also to contact Arnold Konheim (appointee of the Secretary's office). Jay Waldschmidt said schools may be interested in funding for education purposes. George Penesis (Konheim & Ketcham) asked how to get states, who don't do any type of an early outreach program, but only post a newspaper ad, to be interested in the program to pre-educate their communities. Anne Kohut (Airport Noise Report) also pointed out that the public tends to be skeptical of media produced by the FAA, the airline companies, and the Government in general.

Following Larry's presentation, a discussion of research needs and policy agendas began. Larry displayed a recent publication, "Combating Noise in the 90's. " Eric Stusnick pointed out that the public often complain at aircraft- and highway-related noise meetings, but rarely to Congress. Grant Anderson said that in New York, a Type II barrier is built only if people call Congress to fund that barrier. Mike Staiano noted that Larry's presentation would be useful in developing the "millennium" paper.

Discussion -

Gregg Fleming (Volpe Center)

A. AlF04 Summer Meeting (1999)

Gregg announced that the 1999 summer TRB meeting will be held in San Diego, California at the Doubletree Hotel from August 1-5, 1999. The meeting will be hosted by CALTRANS. Gregg asked attendees to vote for one of several workshops to be held: TNM; tire/pavement noise; and research needs update (Note: TRB will have a 2001 conference on research needs). The majority voted for a TNM workshop, which is now scheduled for August 5, 1999.

B. The Wall Journal

Gregg announced El Angove is trying to fully retire and is currently putting together a prospectus to sell The Wall Journal.

Announcements

Gregg Fleming (Volpe Center)

Gregg announced that the design of an AlF04 committee website is in the planning stages. Soren Pedersen is putting together the layout. The website may include the committee newsletters, rosters, agendas, abstracts, and links to other websites. He asked for input from members.

Meeting Adjourned

■

Minutes of the Highway Subcommittee Meeting of Transportation Research Board Committee A1F04 Transportation-Related Noise and Vibration, January 13, 1999

The meeting was called to order at 9:00 AM by Chairman Ken Polcak, from the Maryland State Highway Administration, with approximately 45 persons in attendance. Chairman Polcak welcomed everyone and the attendees introduced themselves and their affiliation

Announcements

Chairman Polcak announced that the 1998 summer meeting was very successful, with 114 persons attending. Ken expressed his sincere thanks to the hosts, Win Lindeman of Florida DOT and three local consulting firms (PBS&J, Inc., Transportation Solutions, Inc., and URS Greiner). He also invited everyone to attend the 1999 meeting, which will be hosted by CALTRANS and Rudy Hendriks in San Diego. Dates are August 1 to August 4, with potentially a fifth day workshop on August 5.

Roger Wayson of the University of Central Florida announced that NCHRP Synthesis 268, entitled "Relationship Between Surface Texture and Highway Traffic Noise" has been published and is currently available. Each State should have a copy by now or will be receiving one very soon. Roger thanked everyone involved and Bill Bowlby (Bowlby & Associates) commended Roger for the outstanding work.

Greg Fleming of the US DOT Volpe Center Acoustics Facility and A1F04 Chairman announced the availability of the new ANSI publication "Methods for Determining Intersection Loss of Outdoor Noise Barriers", which includes a discussion of a correction for handling microphones near building walls and reflection issues. Cindy Lee, also from the Volpe Center, announced the availability of the TNM Look-Up Tables.

Ken then congratulated Lloyd Herman (Ohio University) and co-authors Elvin Pinckney (Ohio DOT) and "Chris" Seshadri (Ohio University) for receiving the Committee A1F04 Harter Rupert Award for the Best Paper of 1999 on Transportation Noise at Tuesday night's annual committee dinner.

Having no additional announcements, the Subcommittee moved on to the scheduled presentations.

Presentations

Volpe Center Video on Acoustics and Highway Traffic Noise

Judith Rochat of the Volpe Center Acoustics Facility presented excerpts from their new video, "Acoustics and Your Environment-The Basics of Sound and Highway Traffic Noise." The entire video lasts 55 minutes and is primarily intended for the noise professional/analyst. This video presents, for the first time, a concise and understandable explanation of basic acoustics and how it relates to highway traffic noise and barrier design. Judy showed excerpts of each of the video segments including:

- Description of Sound
- Explanation of Noise
- Pascals vs. Decibels
- Vehicles and Noise

(**Highway Noise**, *continued from page 17)*

- Noise Affect on Communities Near Highways
- Discussion of Propagation Path, Ground Reflections and Meteorological Effects

The video will be available in March through the National Technical Information Service (NTIS). Judy or Bob Armstrong of FHWA may also be contacted. Anticipated cost will be in the $40 to $50 range. A copy of the notice is attached.

Jay Waldschmidt (Wisconsin DOT) asked if the video could be shortened for public meeting presentations. Bob Armstrong commented that the video may be copied, shortened, or excerpted for that purpose. It will also come with a copy of the written script.

Discussions and Presentations on TNM

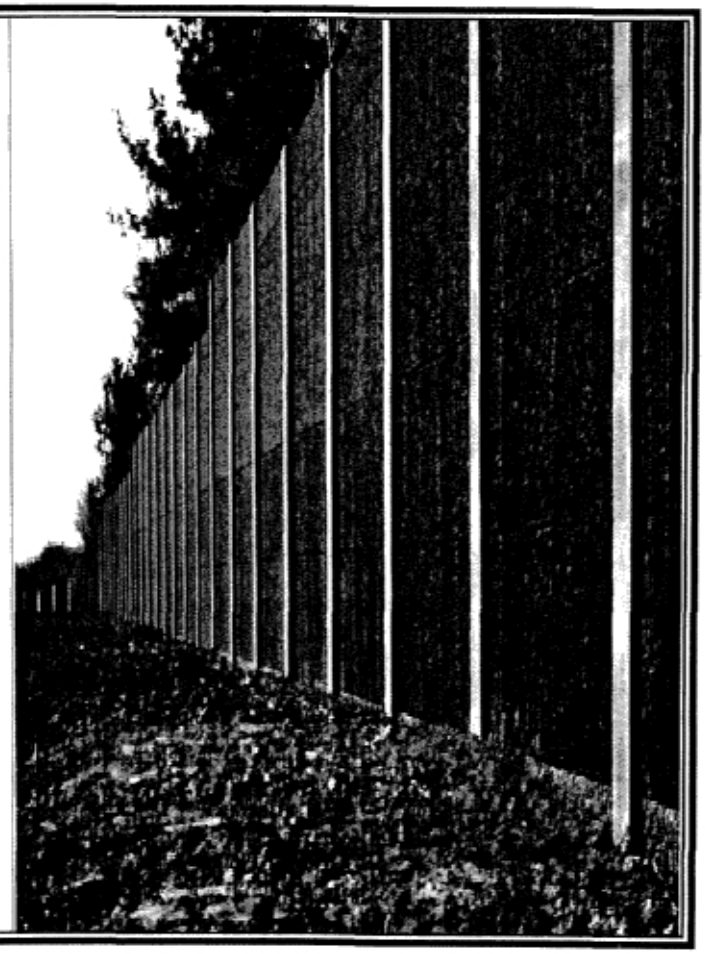
Grant Anderson of Harris, Miller, Miller, and Hanson (HMMH) and one of the principle investigators on the TNM development project presented TNM summary sheets that he has prepared to offer tricks, tips, warnings, hints, and workarounds for the TNM user. Each summary sheet discusses, in condensed and abbreviated form, each of the important aspects of the model including: steps, set-up, importing, input, editing, views, tables, barrier analysis, and contours. There are a total of 15 summary sheets and contain 40-50 extra hints, etc. that are not in the TNM User's Guide. The summary sheets will be available for downloading the week of February 18, 1999 at the HMMH web site, O HYPERLINK http://www.hmmh.com O Owww.hmmh.comO . A sample of one of the sheets is attached.

Bill Bowlby of Bowlby and Associates presented a Tennessee TNM case study, comparing 3 barrier designs using STAMINA and TNM. Tennessee had found that none of the barriers met their cost per dwelling unit reasonableness criteria of $27,500. It was determined that by using the more sensitive TNM model, barrier heights could have been reduced by as much as 4 feet, thereby lowering barrier cost and yielding a cost per dwelling unit lower than the State criterion. A question was raised regarding why there appeared to be more benefit farther behind the barrier with TNM (compared to STAMINA). It was suggested that with TNM there is more ground attenuation accounted for in the "with-barrier" case (compared to STAMINA, which defaults to a "hard site" ground attenuation when a barrier is encountered). Bill also discussed two other TNM issues:

- Floating point errors
- Sensitivity of results considering receiver heights and roadway widths.

Bill has had numerous experiences with floating point errors and believes the cause can be isolated to large coordinate grid systems. He has found that this occurs most frequently with coordinate systems of 5 figures or more and recommends that users alter their grid systems until a more permanent coding solution is found. Some other fixes include shifting the offending receptor slightly, which works sometimes. Cindy Lee suggested sending problem cases to the Volpe Center Acoustics Facility to aid in assessing the problem.

Bill also found that wider pavement widths yield noise level results .5 to 2.5 dBA higher than eguivalent sites with narrowed paving. He stressed the importance of accurate paving widths, including shoulders, when using TNM. He also believes that the individual states should set policy concerning pavement width, so that all



(**Highway Noise**, *continued from page 18)*

users are being consistent.

Sharon Carpenter of Paul Carpenter Associates presented the results of her New Jersey highway department barrier insertion loss study, comparing before and after barrier conditions by using STAMINA and TNM. SHA found that field measured levels differed from STAMINA modeled levels by I to 2 dBA. TNM levels differed by less than I dBA. Sharon admitted to being skeptical of TNM prior to using it, but believes the results of her analysis gives her a better comfort level and justifies the change to TNM from STAMINA. A copy of Ms. Carpenter's handout is attached.

Dr. Meiarashi (May) posed some questions regarding source data vs. propagation data in TNM model verification. Comparative data from Rudy Hendriks' CALTRANS study was cited as a reference included in the Appendix of the TNM Technical Manual.

Some overall trends regarding TNM and STAMINA: for receptors close in, STAMINA and TNM results are fairly close; at large distances from the highway TNM results are substantially better than STAMINA.

Auditory Hazards from Airbag Noise

The last presentation was by Richard Price from the US Army Research Lab in Aberdeen, MD. Mr. Price admitted that air bag noise isn't what one thinks of when discussing highway noise, but it has become a more prevalent problem as more and more vehicles are equipped with air bags. The US Army has been researching air bag noise for some time and has found that it can be as loud as the crew area for a howitzer and can cause immediate but recoverable hearing loss, permanent hearing loss, and cellular changes of the inner ear. The studies utilized Department of Defense data from regular periodic auditory tests of personnel. Some individuals that experienced crashes with air bags were identified and their "before crash" auditory tests could be compared with an "after crash" test. Results of their studies have shown that damage due to air bag noise is, surprisingly, greater in an open vehicle (i.e. convertible windows open, etc.) and when the driver and passengers did not have time to see the accident coming and prepare themselves for impact. He concluded that additional research is important, as air bags become the standard for all vehicles. He also mentioned that the Society of Automotive Engineers (SAE) has an evaluation underway to develop and standard hazard ar,analysis technique.

The scheduled presentation by Dr. Parvis Koushki of Kuwait University was canceled due to a last minute conflict in Dr. Koushki's commitments.

Having no additional business, Chairman Polcak adjourned the meeting at 11:50 P.M. A reminder was given that the full AIF04 Committee will convene at 2:30 P.M. in the Georgetown West Room.

Chairman's Note:

A special thank you is extended to Mr. Chuck Lippy from the Baltimore office of McCormick, Taylor and Associates for providing documentation and minutes for this subcommittee meeting. ■

Wilson & Company
455 E. Pikes Peak Avenue, Suite 200
Colorado Springs, Colorado 80903-3675

February 3, 1999

El Angove, Editor

Subject: Article title "How to build soundwalls that look like a million dollars, last forever, don't break, rust, rot or bust the budget..."Issue 37.

Dear Mr. Angove:

We read with interest the above-entitled article by George Southworth, President, LEAP Associates International, Inc. Wilson & Company is the engineering and architectural firm retained by the Colorado Department of Transportation to design and engineer the noise barrier depicted in Photo 3 of the article. There are several points we would like to make in connection with that article.

First: We disagree that the building of "elaborate and expensive soundwalls" is "buying" the approval of a relatively small group of homeowners. Rather we support the position that soundwall aesthetics enhance not only the homeowners' environment but also the traveling public's. The barrier undulates to allow varied greenway expanses and visual relief between it and the street and cul-de-sacs on the west side.

Second: The wall referred to in Photo 3 has a total of 17 panel designs (12 for the east side of the wall and 5 for the west side of the wall). In its entire 2.5 mile length there is not a single repeating pattern on the east side. Given that this projects over 300,000 square feet, the added costs of an aesthetically pleasing sound barrier added less than 10% to the cost of the barrier. The barrier is made up of some 1,400 precast concrete panels. A dual flat casting process—a first for Colorado, chosen by the contractor, SEMA Construction—enabled both sides of each panel to be imprinted simultaneously, with an hydraulics system stamping a mold from above as the bottom side of each panel was imprinted when poured into the mold.

While soundwalls may be a requirement of the Federal guidelines, noise barriers can enhance and enrich everyone, creating a visual delight,a quiet oasis and a sense of neighborhood and community.

Most sincerely,
Charles R. Gustafson, P.E.
Colorado Springs Operations Manager
■

Big Gus is back in town and he is really, really worried.

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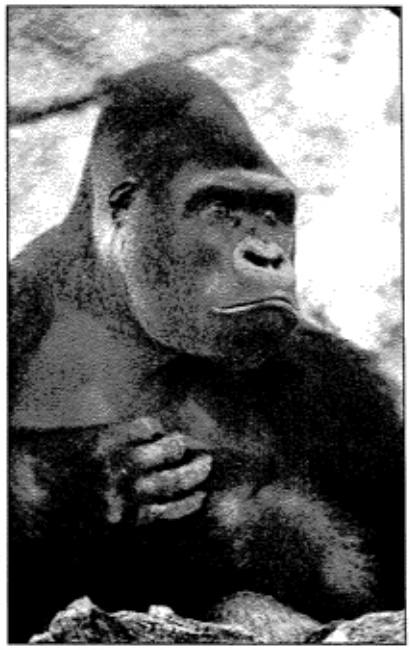

Walrus! — Somethin' big is comin' down. You know I'm not scared of anything in the whole jungle, but I sure got the willies right now. Tell me what's happenin.'

Well, Big Gus. You have been bringing half of the primates in the jungle and other wild creatures of the land in here while I was on a sabbatical in Iceland. Shame, shame. Have you lost your mind?

If you are coming back to work here, I am telling you right now who is going to be boss—me! And, I don't want any of your crazy cousins hanging around in the trees near here. I am THE BOSS—got it? Good.

We might be getting a new boss. There have been a lot of meetings and telephone calls, and I have been able to overhear some of them. I'll tell you if I find out anything.

There are going to be changes, I'm sure, and you had better not bug me if you want to keep your job. Got it? Good.

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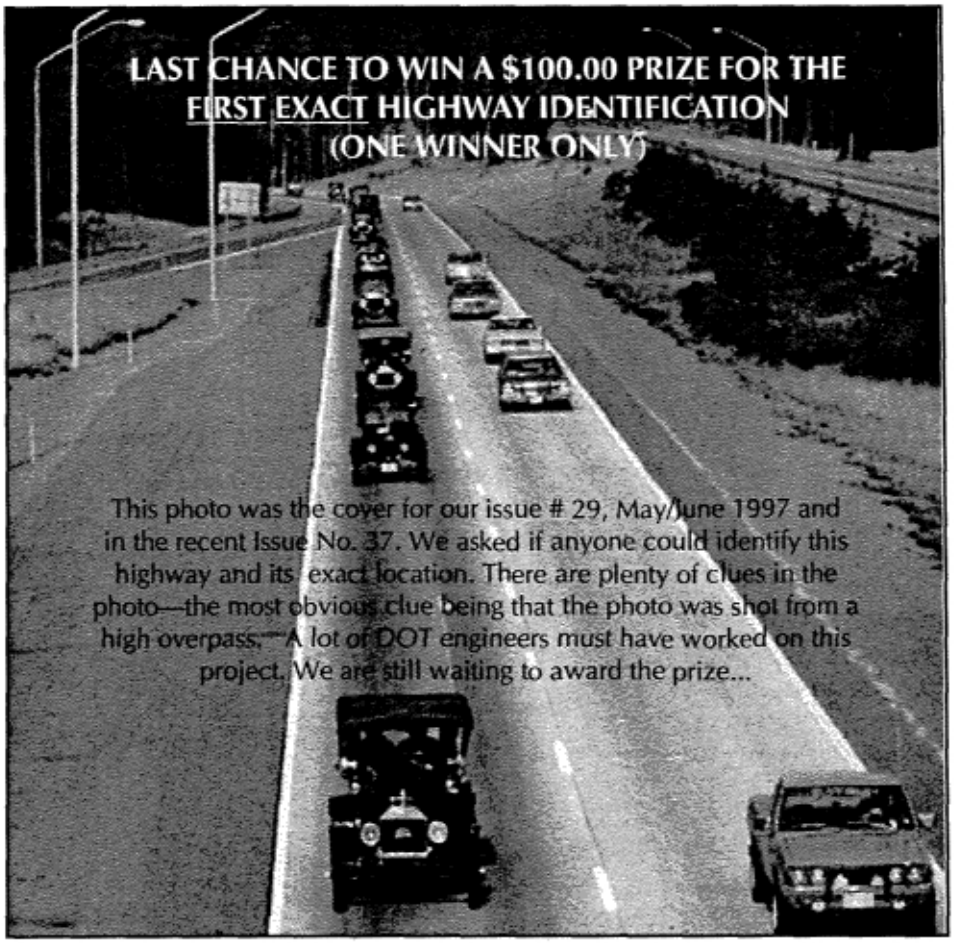

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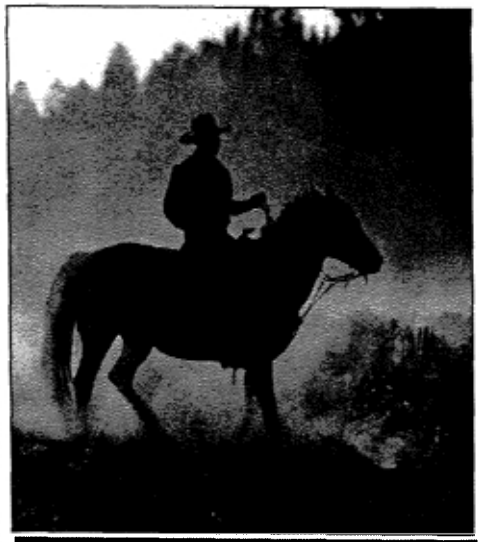

The Lone Ranger

For a while last year, we ran an occasional column which was entitled "The Exit Ramp." We used it when we ran out of good technical copy, or not enough space, or we just ran out of breath and ideas.

We thought "The Exit Ramp" was a good name for the last page of copy, or just to say "thanks, and see you next issue."

Well, it turns out to be prophetic in a certain way. The Wall Journal is not going away but the old Editor is. I've been herding this publication for almost seven years, operating as a one-man Lone Ranger and I think it is time for younger and smarter brains to carry on what has turned out to be an international publication with wide renown.

I'll be around while transactions are completed for a takeover by the new partners—people you know and respect—but The Wall Journal will continue much as it is now but better.

I'll keep you posted. — Ed.

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