TECHNOLOGY FOR
# Alaskan Transportation

Fall/Winter 1997
Volume 22 Number 3

**In This Issue...**



## *Local Technical Assistance Program*

# AASHTO TRAC BEGINS SECOND YEAR IN ALASKA

*by Sharon McLeod-Everette, T2 Director*

Alaska Department of Transportation and Public Facilities (DOT&PF), partnering with Alaska Department of Education (DOE), added five Alaska schools to an exciting outreach program geared to interest high school students in math and sciences and encouraging them to consider careers in engineering. The program, developed by the American Association of State Highway Transportation Officials (AASHTO), provides a Transportation Research Activities Center (TRAC) tool kit, called a PAC, to each participating school. Each TRAC PAC has: a Pentium computer, Windows95, a sound meter, force probe, motion sensor, materials for magnetic levitation experiments, bridge design and intelligent transportation system modules, along with a bundle of software.

Along with the AASHTO TRAC PAC comes the opportunity for high school students to hear about and

*continued to page 3*

# *1997 Annual LTAP Conference*

*by Jim Swing, Public Works Director, Mat-Su Borough*

The 1997 Annual Local Technical Assistance Program (LTAP) Conference was held in Duluth, Minnesota, July 27 - 30, 1997. The conference was planned and sponsored by Federal Highway Administration (FHWA) Region 5, LTAP personnel of Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin, and the Minnesota Local Road Research Board. The Minnesota Technology Transfer (T2) Program, Center for Transportation Studies, and the University of Minnesota hosted the conference. Sharon McLeod-Everette, Director of the Alaska T2 Center and Jim Swing, Advisory Board Member and Public Works Director for the Matanuska-Susitna Borough, attended for Alaska.

*courtesy of Minnesota LTAP Center*

The conference opened with a ceremony at 5pm on July 27, featuring a "Minnesota Welcoming" by representatives of Minnesota transportation agencies and by FHWA personnel. The opening ceremony

*continued on page 5*

## Free Materials Available from BTS

The United States Department of Transportation(DOT) Bureau of Transportation Statistics(BTS) has TransStats-Federal Gas Tax: Household Expenditures from 1965 to 1995 available free of charge. Also available are Travel Demand Forcasting CD-ROM, and National Transportation Atlas Databases 1997 CD-Rom.

To obtain a copy of these items, contact the Bureau of Transportation Statistics at 202/366-DATA; fax: 202/366-3640; or E-mail: orders@bts.gov.•

## We moved!

Please note the change in the location of our office. The Alaska Technology Transfer Center has moved to the space adjacent to its library at 2175 University Avenue, Fairbanks, Alaska 99709. The mailing address has not changed, though.
Our fax number has also changed to (907) 451-5340.
Come visit us anytime!•

### *Farewell to Susan Earp*

Susan Earp, Alaska T2's Program Assistant and Librarian has accepted a promotion in another part of the Department of Transportation and Public Facilities. She has been invlolved with T2 since 1988, first as a student and then, in 1991, as a full-time clerk. Her tireless efforts have helped to keep T2 on track, and she'll be missed. We wish her the best of luck!•

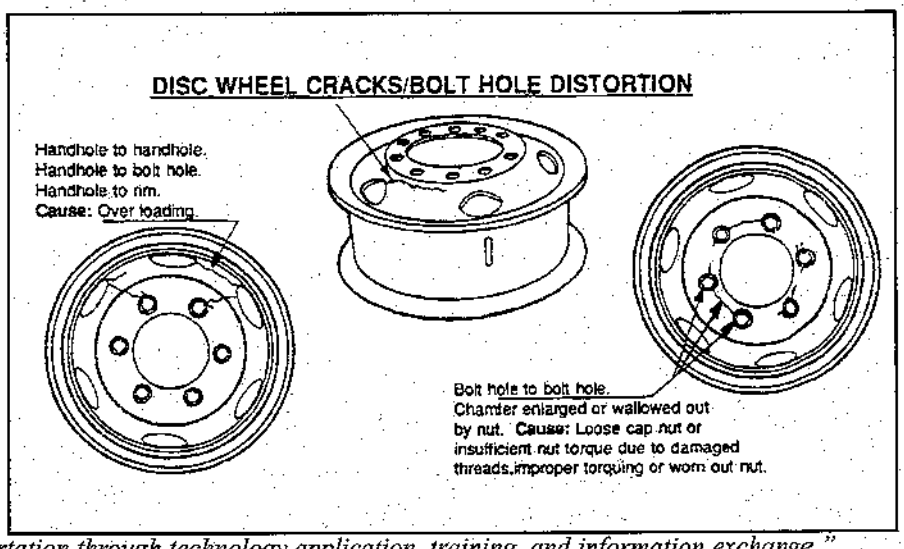

# *Alert to Municipalities* — *News & Views*

## Snow Plow Truck Wheel Separations

During the winter of 1996-97, the Ontario Ministry of Transportation experienced wheel failures on two MTO snowplow trucks. As a result of these failures, MTO inspected the wheels on all snow plow trucks in the ministry fleet, and requested all contractors working for MTO to all inspect the wheels on their trucks. The failures were encountered on trucks equipped with Accuride hub piloted wheels, but both the hub piloted and cast spoke wheels were inspected. The inspection of 50 MTO trucks with hub piloted wheels identified 19 cracked wheels. The inspections also revealed loose wheel nuts, damaged wheel nuts, damaged hubs, low tire pressure, corroded wheels and leaking oil seals. The inspection of the cast spoke wheels revealed seized wheel hubs, under-torqued wheel nuts, damaged wheel nuts, rusted and pitted wheel rims, leaking oil seals, worn hubs, damaged and collapsed wheel spacers, misadjusted wheel bearings, and low tire pressures. All of these vehicles had been subjected to the standard CVOR annual inspection.•

## Proper Procedure to Check Wheel Nut Torque

- Do not over tighten
- Use a torque wrench
- Do not back off the nuts, if the nuts are backed off they must be rechecked again after 80 to 160 kilometers
- Tighten if necessary to the proper torque value
- Note in the DI book the adjusted torque values, date and sign



*"TRAC" continued from page 1*

*Below: Vic Winters, DOT&PF Aviation Design, watches Bethel Teacher Tad Lindley work a mag-lev experiment while DOT&PF bridge designer Elmer Marx checks the TRAC manual.*


*The mag-lev car designed and constructed by the Kotzebue High School team of Conrad Herman and Blaine Galleher.*

see real-life experiences. DOT&PF employees, particularly engineers, pair up with teachers working with TRAC in a participating high school. The engineers visit the classroom to talk about their jobs and examples of the engineering, science, math, and social studies problems they face in their work.

Alfred "Tate" Jackson, an engineer with Maryland DOT, TRAC trainer, and one of the TRAC pilot participants, taught a two-day orientation in November 1997 in Anchorage, for teachers from the ten participating Alaska schools and the engineer partners from DOT&PF. The teachers and engineers learned by hands-on application, just as the high school students would. They practiced experiments in each of the TRAC PAC modules amid laughter and moments of intense competition, which emerged during the mag-lev vehicle construction and associated force and motion experiments.

A DOT&PF-sponsored open house during the last afternoon showcased TRAC and offered other agencies, as well as private companies and corporations, the opportunity to participate in the AASHTO TRAC program. Ways to participate include sponsoring a computer, TRAC PAC, or an engineer, or any combination of those items, for a high school. More details on participating are included in this newsletter.

Currently participating high schools, teachers, and their DOT&PF engineer partners are:

•Kotzebue High School: Conrad Herman, Blaine Galleher, Construction, Nome;

*Pete Kramer & Gene Crowe, Glennallen teachers, and John Paulson, DOT&PF Engineer graph a motion experiment.*

•Bethel High School: Tad Lindley, Vic Winters, Aviation Design, Anchorage;

•Juneau-Douglas High School, Carol May, Elmer Marx, Headquarters Bridge Design, Juneau;

•West Valley High School, Marty Foster, Janet Brown, Maintenance and Operations, Fairbanks;

•Howard Luke Alternative School: Jim Grey, Lorena Hegdal, Aviation Design, Fairbanks;

•East School-Within-A-School: Mike Fenster, Miriam Tanaka, Highway Design, Anchorage;

•Chugiak High School: Don Brown, Miriam Tanaka and Vic Winters;

•Colony High School: Theresa McQuaide, Miriam Tanaka and Vic Winters ;

•Glennallen High School: Pete Kramer and Gene Crow, Jon Paulson, Construction, Valdez and Clarence Catledge, Maintenance and Operations, Glennallen;

•Homer High School: Dick Sander and Bill Craine, any available DOT&PF engineer via the Internet.

Additional TRAC program support during the orientation and open house was provided by Michael D. Travis, Travis Environmental Consulting, Anchorage; Jemima Drummond, DOT&PF Computer Support for Central Region in Anchorage; and Christopher Tilly, Gizmo Enterprises, Fairbanks.

*Tate Jackson, TRAC instructor, Maryland DOT, Selina Moose, NANA Development Corporation, and Mel Nichals, NANA/Doral Engineering, & DOT&PF Commissioner Perkins at the TRAC open house.*

## *Using Culvert Pipe End Reshaper Part of County Roads Scholar Maintenance Course*

Course No. 1 of the County Roads Scholar Program if *County Road Maintenance*. Included, as part of that course, is what to do about the ends of corrugated metal culvert pipes that have been crushed, a common rural road maintenance problem.

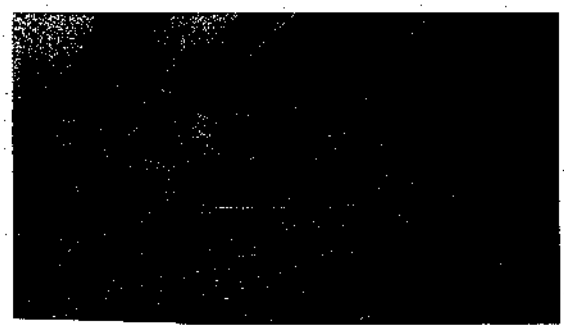
If nothing is done to correct the crushed culvert pipe ends, water backs up in the pipe and the ditch upstream, and eventually the base of the road fails from water saturation.

Typically, road crews have tried to fix crushed pipes by using a jack of some type to reshape the ends. Anyone who has ever tried this method knows how ineffective it is.

Another solution is to replace the entire pipe. While this is an excellent remedy, it is very expensive because of the cost of the pipe and labor, and very inconvenient because of the need to close the road. Plus, this solution really does not make any sense when the part of the pipe under the road, the part that carries the load, had nothing wrong with it.

What is needed is a device that can effectively and inexpensively reshape the ends of crushed pipes. Such a machine does exist and can be built for about $300 in materials. The photo above shows Doug Wright, Oklahoma LTAP Manager, demonstrating the reshaper. According to Doug, "Not only is it cheap to build, easy to use, and almost indestructible, it works great too."

As shown in the photo below, the device consists of a welded hydraulic cylinder with a scissors type jack attached to the actuating rod. When the jack is collapsed it can be placed in the end of the crushed pipe. The cylinder is then retracted, the jack expands and the pipe end is reshaped. The entire process takes about as long as it takes to read this paragraph. One of the goals in designing the device was to make use of common "off the shelf" components. Neither the parts nor the design are very complicated and assembly requires only a minimum amount of machining and welding. Several of these devices have been constructed and successfully used in the field. The Oklahoma LTAP Center has built one and tested it extensively. The Arkansas Department of Transportation has constructed and used nine of the reshaping devices.



For more information or to receive a set of plans, please contact Doug Wright at the Oklahoma LTAP Center, 405-744-6049, FAX: 405-744-7268.

*Reprinted with permission from Oklahoma LTAP News, April 1997.*•

# *Experience With the Ignition Oven*

*by Eric Johnson, State Engineer of Tests*

The ignition oven is used in asphalt content determination procedures to replace the previously used trichloroethane, biodegradable solvents and nuclear asphalt content measurements. It burns off the bituminous binder and leaves only the aggregate, producing a clean aggregate sample for gradation analysis. The ignition oven provides a safer and more accurate alternative. It can be used with an internal weighing system so hot samples don't have to be handled like in an ashing furnace, and errors due to a change in weight as samples cool are eliminated. The results are accurate, and with calibration, the accuracy of the furnace doesn't depend on aggregate type or asphalt content. Calibrations are also transferable from one furnace to another.

Using the ignition oven for asphalt content determination begins with dividing field samples to obtain testing samples 1200 to 4000 grams depending on aggregate size. Samples are placed in nested stainless steel baskets and burned at 538 degrees Celsius in the furnace until the sample weight remains steady. The residue is cooled and emptied into a flat pan for separation and gradation analysis.

Each Alaska Department of Transportation and Public Facilities (DOT&PF) regional laboratory has pur-

*continued on page 24*

*"LTAP" continued from page 1*

also featured a congressional perspective on transportation issues.

On Monday, the technical and educational sessions began. The sessions were divided into general sessions, which included all conference participants and concurrent sessions in which participants had the choice of attending one of three separate sessions on leadership, applied technologies, or center operations.

Mr. Earl Hipp of Human Resources Development, Inc., the keynote speaker, gave talk on "Facing Change: The Journey of Discovery" during the first general session Monday morning. Other general session discussion topics included: LTAP strategic planning, local funding alternatives, the role of libraries and information services in technology transfer, the opportunities and expectations of LTAPs in regard to Tribal T2 Centers, and the Indian Reservation Road System.

*courtesy of Minnesota LTAP Center*

Concurrent sessions included a wide variety of educational and technical subjects. A best practice exhibit allowed LTAP Centers to share their technology transfer successes through displays, including Alaska T2 Center's display of the Riverboat Circuit Rider program.

Following the conference, the FHWA and the Minnesota T2 Center hosted a 1 ° day workshop on "Pavement Recycling- A Successful Time Tested Technology". This pilot training course provided participants with an understanding of the various methods of recycling asphalt pavements (hot and cold); the ability to determine when asphalt recycling is a pavement rehabilitation alternative; information on how to select the most appropriate recycling method; information on materials and mix design for recycling; information on equipment, construction methods, and QC/QA practices involved in recycling; and pavement design methods for hot and cold recycled asphalt pavements.

The course instruction manual and course outlines are available from the Alaska T2 Center.•

## *Guide to Computer Lingo*

**Log On:** Making the wood stove hotter.
**Log Off:** Don't add wood.
**Monitor:** Keep an eye on the wood stove.
**Download:** Getting the firewood off the pickup.
**Mega Hertz:** When you're not careful downloading (watch the toes!)
**Floppy Disk:** What you get from piling too much wood.
**RAM:** The hydraulic thingy that makes the woodsplitter work.
**Hard Drive:** Getting home in mud season.
**Prompt:** What you wish the mail was in mud season.
**Windows:** What you shut when it's 30 below.
**Screen:** What you need for black fly season.
**Byte:** What black flies do.
**Chip:** What to munch on.
**Micro Chip:** What's left in the bag when the chips are gone.
**Infrared:** Where all the leftovers go when Fred is around.
**Modem:** What you did to the hay fields.
**Dot Matrix:** Farmer Matrix's wife.
**Lap Top:** Where little kids feel comfy.
**Keyboard:** Where you hang your keys.
**Software:** Plastic eating utensils.
**Mouse:** What eats the horse's grain in the barn.
**Main Frame:** The part of the barn that holds the roof up.
**Port:** Fancy wine.
**Enter:** C'mon in!
**Random Access Memory:** You can't remember how much that new rifle cost when your wife asks.

*Reprinted with permission from Vermont Local Roads News, Summer 1997.*

# Sand Storage Shed on a Budget

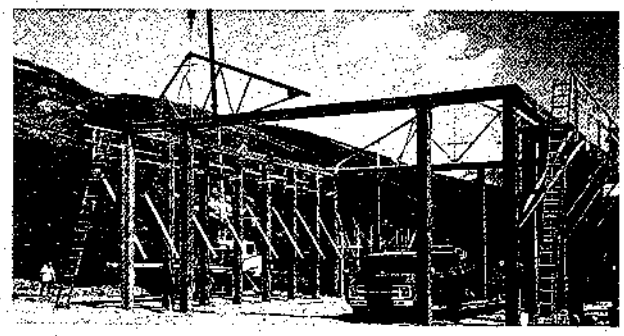
*by George Levassuer, Southcentral District Manager, Maintenance & Operations*

As the population of Alaska increases, so do the number of motorists and the amount of winter miles driven on Alaskan roads. In order to provide for safe travel, state, borough, and city road crews apply abrasives to increase traction. In the coastal communities of southcentral Alaska, winter sand use has quadrupled in the last 20 years.

In most areas road crews must mix salt (sodium chloride) with the sand at a rate of 5% to keep the stored pile from freezing. This practice is known as stockpile maintenance. When stored outside these treated piles are subject to saturation and leaching of chlorides into the surrounding ground with negative effects on ground water and adjacent vegetation. The U. S. Environmental Protection Agency (EPA) has recognized these hazards and is preparing regulations to require salt and salted sand piles to be covered.

These regulations will require maintenance managers to cover their piles, still provide sand for the motorists, and stay within budgets.

In 1989, DOT/PF facility supervisor Bob Price, with the help of his building maintenance crew, designed



*Sand shed under construction*

and built an economical, low maintenance, and long lasting sand shed capable of storing 750 to 1000 cy of salted sand. The 40'X60' building is of pole barn construction and is easily erected. Posts are 12"X12" treated timbers (or you can use 12"X20" used bridge timbers) on 8' centers set 6' in the ground. Top plates are also 12"X12". Wall height is 20' and is plated with 4"X12" all weather wood treated timbers on the inside. These extend to a height of 8' with 3/4" plywood beyond that with a 4' open space on the top for ventilation. In some areas such as Thompson Pass, the entire structure is enclosed to prevent blowing snow from entering the open top. The roof is built up with manufactured trusses on a 6/12 pitch on

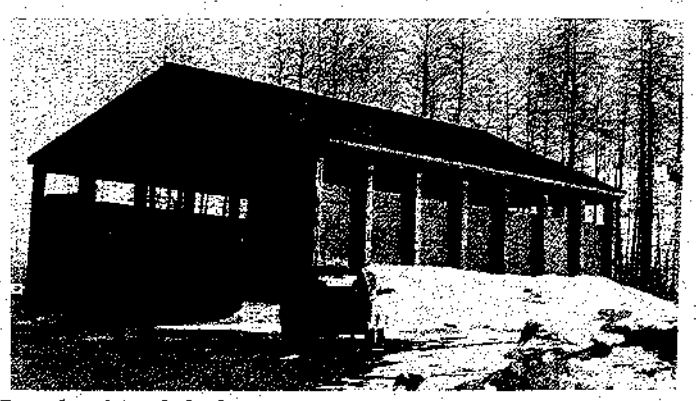
*Placing a truss on the frame*

24" centers. The door opening is 23' wide and 16' high. Cost of the structure is about $27,000 for materials and $42,000 in wages and per diem. This cost can be reduced substantially if you can find used materials such as bridge timbers and planks. Also, scheduling construction during periods when crews have discretionary time will reduce costs.

In the Southcentral District of the Northern Region DOT/PF, we have built five of these sand storage buildings. They are located at Mile 19 Richardson Highway& Thompson Pass, Nelchina, Chitina and Slana maintenance camps.

T2 hopes to have the plans converted from hand-drawings to AutoCAD by April 1. Call Sharon McLeod-Everette at 451-5323.

For further information, hand-drawn plans, and a material list, contact Gary Baxley, Southcentral District Buildings Specialist at 907/ 834-1099 or write to Gary at Box 507, Valdez, Alaska 99686.•



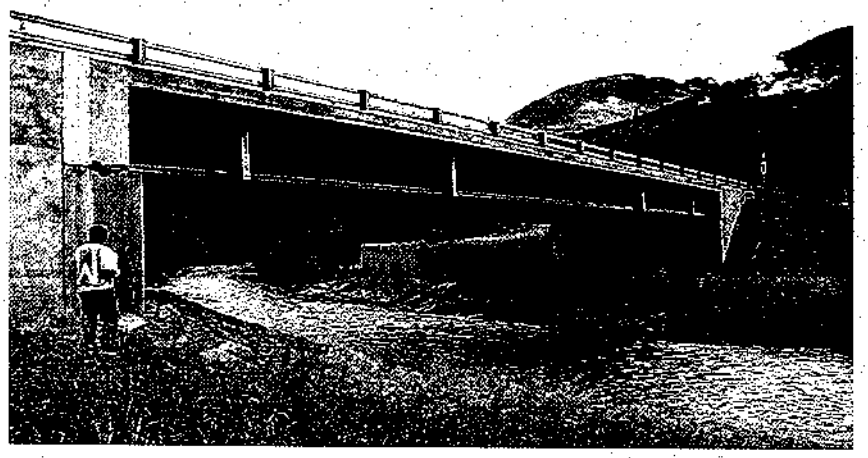
*Completed sand shed*

# *Bridge Inspections Go Hi-Tech*

*By Drew Sielbach, Federal Highway Administration Structural/Technology Transfer Engineer*

Federal regulations require all bridges on public roads to be inspected every two years to help ensure the safety of the traveling public. The Alaska Department of Transportation and Public Facilities bridge section is responsible for inspecting all public bridges in Alaska not owned by Federal agencies.

To achieve consistent responses, readable reports, and retrievable bridge inspection data, the bridge section's inspection unit developed electronic inspection forms for use on laptop computers. The inspection forms were developed by Tim Mitchell, the head of the unit, using Microsoft Access as the base program. They were specifically designed to meet the needs of the inspectors in Alaska, and at the same time satisfy the requirements of the National Bridge Inspection Standards.



During the summer of 1996, the electronic inspection forms were tested during a limited number of inspections by Steve Bradford, the Chief Bridge Engineer, and George Imbsen, a Senior Bridge Engineer. They were able to become familiar and efficient enough with the data entry that using the computers was about as quick as taking handwritten notes. The real payoff came back in the office with reduced time spent on the report write-ups. As a result of the successful tests, the bridge section purchased an additional two laptop computers and completed all of the 1997 bridge inspections using the electronic inspection forms.

Based on one year's experience with the electronic inspection forms, it appears that the objectives of consistent responses, readable reports, and retrievable data have been attained. Additionally, as inspectors became familiar with the system, report preparation became less time consuming. The inspectors commented favorably on the electronic inspection forms once they got used to data entry in the field.

Since DOT&PF developed the electronic inspection forms, the forms have been designed to meet inspectors' specific needs. The electronic forms include the standard items required for the National Bridge Inventory data, DOT&PF's bridge management system data, hydraulic information, directions for specific inspection needs on individual bridges, and a section for recommended work.

One unique aspect included is a separate module that collects additional information on items DOT&PF has identified as problem areas or information for long-term performance tracking. To input this information, the inspector has to click on the appropriate pre-written response that is located next to a photo of that specific item. Pre-written responses are also available via a pull down menu for many of the standard data fields.

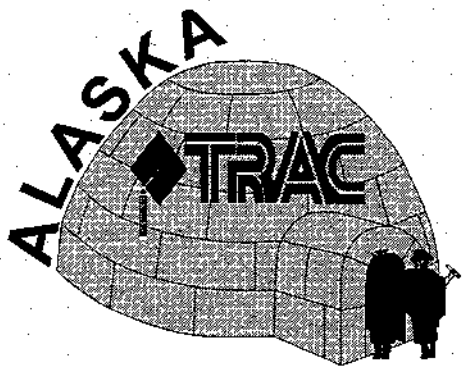
In an effort to reduce the number of reference manuals needed during the inspections, additional information is available within the electronic forms by double clicking on an input field.

Eventually, DOT&PF would like to integrate digital photos into the reports to replace the 35mm photos currently being used. Digital photos will further decrease the time spent on report write-ups and reduce the cost of inspections by eliminating film purchases and developing, as well as the time spent by the inspectors incorporating photos into the reports. Other advantages of digital photos are the ability to distribute them via e-mail and quickly retrieve and print additional copies.

For now, paper copies of the bridge inspection reports and photos will continue to be transmitted to the owners for their information and action. Eventually, these may be replaced with an electronic transmittal.•

# *FAST FACTS ABOUT TRAC*

*http://www.trac.net*




***WHAT:***

- **TRAC** is a **hands-on, interactive** program the lets students use math & science to solve **real-world problems in transportation & civil engineering**. The program opens young minds to new ways of learning.
- **TRAC provides a computer and a mini-lab of electronic equipment (the TRAC PAC) to secondary schools** on permanent loan. Engineer practitioners (school partners) deliver the program to the school and remain on call as a resource. Teachers in **math, science & social science** classes use TRAC to bring concepts alive.

***WHO:***

- **State Departments of Transportation** have joined with other government organizations, universities, private companies, and nonprofit organizations to make TRAC available to **secondary school students and teachers**.

***WHEN:***

- National implementation began with the **1994-95** academic year. Plans are to have the program operational in 3,200 schools in at least 40 states by the year 2000.

***WHY:***

- To give **students** new ways of exploring concepts in math, science, & social science.
- To give **teachers** ways to relate their curriculum to events in the real world.
- To bring **engineers** into the classroom as mentors, role models, & resources.
- To build **problem-solving** skills.
- To interest more kids from disadvantaged backgrounds in pursuing **careers in transportation and civil engineering**.
- To build a transportation work force that reflects the **ethnic & gender diversity** of America.

***HOW:***

- TRAC is a program of the **American Association of State Highway & Transportation Officials**.
- Major funding is provided by the **Federal Highway Administration**.
- Funding organizations include American Road & Transportation Builders Association, American Society of Civil Engineers, Associated General Contractors, Cooperating Hampton Roads Organizations for Minorities in Engineering, Institute of Transportation Engineers, National Asphalt Pavement Association, National Society of Professional Engineers, Southern New England Association of Technical Professionals, & Womens' Transportation Seminar.
- Departments of Transportation in thirty-five U.S. states & territories & South Africa sponsor TRAC. Twenty-six are deploying the program into their schools. New states are joining each year.

***WHERE:***

- TRAC currently has Regional Centers in 24 states, Puerto Rico, & South Africa. To contact the Alaska TRAC center, contact the Alaska Tecnology Transfer or Department of Education at the numbers below.
- Nationwide status as of Summer, 1997: 525 participating schools; 95,000 students, & 3,150 classroom uses.•

***Contacts:***

**DOT&PF** Sharon McLeod-Everette
907/ 451-5323 Fax 907/ 451-5340
Sharon_McLeod-Everette@dot.state.ak.us

**DOE** Nanci Spear
907/ 465-8718 Fax 907/ 465-3396
nspear@educ.state.ak.us



*"Improving Alaska's quality of transportation through technology application, training, and information exchange."*

# AASHTO TRAC PROGRAM

## Joint Five Year Plan
## Department of Transportation and Public Facilities
## Department of Education

### *Year 1: 1996/1997*

Alaska Department of Transportation and Public Facilities (DOT&PF) became a member of the American Association of State Highway Transportation Officials' (AASHTO) outreach program to high schools, called AASHTO TRAC. TRAC stands for Transportation Research Activities Center.

DOT&PF established a partnership with Alaska Department of Education (DOE) with the goal of encouraging Alaska youth, particularly women and minorities, to become interested in math and science career fields, specifically engineering. AASHTO TRAC is the vehicle for the partnership.

DOT&PF and DOE initiated and implemented the program in five pilot high schools: Colony (Wasilla), Homer, Juneau-Douglas, West School-Within-a-School (Anchorage), and West Valley (Fairbanks). Teachers and engineering partners attended training conducted in Anchorage in mid-November, 1996.

The teachers and engineers were trained with a TRAC PAC provided by DOT&PF, which included a DOS-based computer, customized software, a digital interface and interface software. It also included a tool kit of light and sound level meters, a motion sensor, a force probe, a graph plotter, and supplies to make magnetic levitation vehicles, all for hands-on classroom exercises. Student and instructor manuals are also part of the tool kit.

### *Year 2: 1997/1998*

Alaska's currently-participating school computers will be upgraded to Windows95 during scheduled training. Five new schools join the program. A TRAC national trainer came to Alaska to train the participating teachers and the engineer partners in mid-November.

Events will include an open house showcasing the AASHTO TRAC program and requesting program support contributions, and continuing partnerships with businesses with similar goals. A non-profit TRAC governing board will be established and funding solicited to leverage dollars in order to reach more communities, to replenish supplies as needed, and to move toward program self-reliance.

Additional mechanisms will be developed to support and network teachers and engineers working in the classrooms. Data will be collected to determine the effectiveness in reaching the goal of involving more students, particularly women and minorities, in careers in math and science, especially engineering.

### *Year 3: 1998/1999*

Five new school partnerships will join the continuing participants. Training will be scheduled in the summer at a University, and the participants will receive credit. A statewide project or competition will be developed and held among the 15 partners. The TRAC program will target participation by schools with a primarily Native population.

The TRAC Board will continue to showcase the project to gather support in order to increase non-government participation and form an independent non-profit organization. It will also pursue grants for continuing the TRAC project. The TRAC Board will also stay current with standards-based education goals for Alaska, and will share that goal with the national AASHTO TRAC program.

### *Year 4: 1999/2000*

Five new school partnerships will join, increasing the total number of participants to twenty. Remote districts will be targeted for participation. The Alaska TRAC program will continue to move toward self-reliance with the non-profit TRAC Board and partnering efforts in the private sector.

### *Year 5: 2000/2001*

Five new partnerships join, making 25 computer packages and tool kits implemented in Alaska's schools.

The next five-year plan is developed, using data collected to determine the effectiveness of reaching the goal of inspiring students, particularly women and minorities, to: 1) get involved in math and science career fields, and 2) become engineers.•

# CONTRIBUTING TO TRAC

You now have the opportunity to take part in an outreach program to high school students. Working cooperatively, the Department of Transportation and Public Facilities (DOT&PF) and the Department of Education (DOE) have already placed the TRAC program in ten Alaskan high schools over an eighteen month period. But in addition to the ten TRAC PACs already purchased, other schools are expressing an interest in the program. Your participation could help expand the program. There are a number of ways to participate in this opportunity.

**Contributing to TRAC:**

I. Full or partial direct sponsorship of a school
II. Engineer partners
III. Incorporating TRAC into an existing non-profit
IV. Assisting to form a non-profit corporation to manage TRAC

**I. Full or partial direct sponsorship of a school**

Attached to this information sheet is a breakdown of the costs to sponsor one school. If you would like to directly sponsor a school, we will work with you to put it together. Sponsoring one school will cost $3,776.00* (computer and TRAC PAC, plus the cost of providing an engineer partner; in following years, consumable supplies will need to be replenished). You may have a particular school in mind which you would like to name. Prior to the identification or formation of an appropriate non-profit, DOT&PF would order the necessary equipment from AASHTO TRAC, provide the company name, phone, address, and contact person, and the sponsor would be billed. When you sponsor a school, we will imprint the TRAC PAC with your business name. If you are not able to undertake the full cost of such a sponsorship, you may prefer to team together with one or more firms and select a school together. In fact, any contribution you can make would be appreciated.

**II. Engineer Partners**

One of the unique features of the TRAC program is that it brings the world of work into the classroom. Using a real work model, volunteer professional engineers come into the classrooms as partners with science, math, and social science teachers to mentor students. This gives students an opportunity to learn from someone who works with engineering principles every day, helps them see how civil engineers fit into the overall picture and provides them with a practical prospective of the engineering professional. We need engineer volunteers to go into the schools. Training to work with the TRAC program costs $220.00*.

**III. Incorporate with an existing non-profit**

One of the easier and cleanest ways for government and private organizations to work together is to form a non-profit organization to manage the program, and, perhaps more importantly, manage the funding. With a separate non-profit, the finances of the program can be directed by the board, thus avoiding entanglement with the restrictive rules of state government and providing for cooperative management. If you are already a non-profit for educational purposes or transportation-oriented non-profit with an education component, or if you are affiliated with such a non-profit, and would be willing to incorporate the TRAC program, we could use your assistance.

**IV. Formation of a new non-profit**

If an existing non-profit is not identified, we need volunteers to form the initial non-profit board of directors to run the TRAC program. DOT&PF and DOE will facilitate the formation of the non-profit if volunteers are identified to serve on the board. Several other states that participate in TRAC run their program this way.•

*Based on 1997 costs

# Trailer Safety

***Capacity and loading procedures are key for safe operation***

*by Jennifer Aronson Lescohier*

Safe trailer operation can save the lives of employees, customers, and innocent bystanders, as well as prevent liability for accidents.

**Check the rating**

All trailers have a rated load capacity that should never be exceeded. Over-extending that capacity could affect braking and turning, as well as make the operator liable for any accident that might occur as a result. Choosing the right trailer begins with finding the "worst case scenario," says Rick Farris, assistant sales manager with Trail King Industries. "Find the heaviest piece of equipment you have or the worst load angle. Everything else will fit from there."

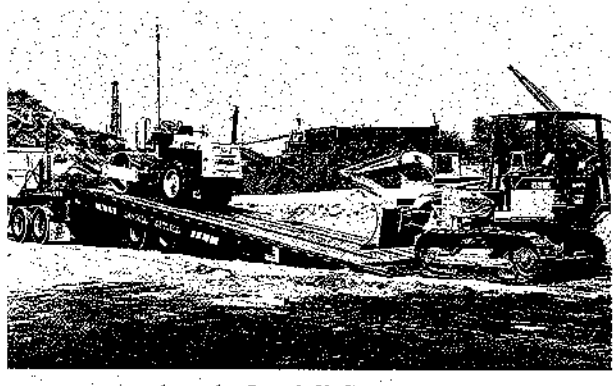


*photo by Landoll Corporation*

Unfortunately, this advice isn't always followed. "Typically, a customer buys a trailer with a marginal capacity to haul his regular loads," says Jim Ladner, national sales manager in the trailer division of Landoll Corp. "That's abusing the safety margin of the trailer. Any time it's overloaded, the operator takes on a huge amount of liability."

The condition of the trailer is another important factor. The U.S. Department of Transportation requires a daily walk-around inspection of the truck and trailer when the gross weight exceeds 10,000 lbs.

According to Norm Tweedy, marketing manager at Dakota Mfg. Co., which makes Trail-Eze trailers, most contractors have routine maintenance for other pieces of equipment, but never look at their trailers. He advises having a regular checklist to make sure everything is safe.

**Load'er up**

Trailers should be on firm, level ground before loading begins. The trailer bed should be dry and not slippery.

For actual loading, consult the equipment operator's manual for proper load positioning and for instructions on whether to back the equipment onto the trailer or drive it forward.

Keep in mind that too much weight on one axle could affect the operation of the trailer, as well as result in an illegal weight overload, which can be expensive when the rig is pulled onto a scale.

Only qualified operators should move the machine on or off the trailer. The machine should be moved slowly, with any attachment set only high enough to clear the load area.

Equipment operators should always wear a seat belt when driving a piece of equipment onto a trailer— it can save a life in the event of a rollover. To help prevent a rollover, throw dirt or Oil-Dri on slick ramps.

**Securing the load**

Once the equipment is on the trailer bed, it's important to lower attachments in order to get the load as low as possible. This makes the rig more steady on the road by reducing the height of the center of gravity of the equipment.

The next step is to shut off the machine's engine and remove the key. Move the hydraulic levers back and forth to neutralize any stored potential energy. Then set the parking brake and leave the transmission in gear, unless the operator's manual says not to.

Put the mechanical lock in place on articulated machines. All manual protective devices should be installed as well.

For the proper load securement, chains should be applied to prevent movement in all directions. All tiedown assemblies and chains have a safe load capacity and must be inspected regularly.•

*Reprinted with permission of Pavement Maintenance & Reconstruction, published by Johnson Hill Press Division, Cygnus Publishing. For subscription information call 800-547-7377.*

# Nightmarish Driving

We know that excessive drinking can prove fatal when combined with driving. But what about lack of sleep coupled with a steering wheel? A Canadian study offers some surprising findings.

Researchers developed a computer-based driving simulator to measure errors in driving under different conditions:
1 The subjects were well rested and alert,
2 the subjects were considered legally drunk and
3 the subjects were suffering from sleep deprivation.

More than half of the sleepy subjects did not perform as well on the driving test as even the worst of the well-rested subjects. But the shocker was that some of the sleepy subjects performed worse than the drunk drivers.•

*Reprinted with permission from Nevada Milepost, Fall 1997.*

*Photograph of the Richardson Highway. Fairbanks, Alaska. Courtesy of Jaque Callis.*

# Tips for Night Owl Drivers

- Clean your headlights, taillights and signal lights with a damp cloth once a week. Clean your windows (inside and out) at least as often.
- Before you head out on the road, check all your lights and signals. Have your mechanic inspect your headlight aim every few months.
- Before you start the car, give your eyes up to five minutes to adjust to the dark.
- Wear sunglasses whenever you spend several hours outside. They allow you to retain your store of "visual purple," a chemical that helps your eyes adapt to the dark.
- Slow down by at least a third. It's one of the best ways to compensate for reduced night vision.
- Leave at least 300 feet between you and the car ahead of you.
- Drive defensively. You must be more attentive at night because so many other drivers are likely to be impaired.
- Stop at least once an hour to stretch, drink coffee or eat a light snack.
- Turn on headlights at early twilight to help other motorists see you.
- Use high beams with care. Switch on low beams when an oncoming vehicle is about 500 feet away or when you're within 300 feet of a vehicle you are following. Don't use high beams in fog or snow; they'll create a glare.
- Don't look directly at the high beams of an oncoming vehicle. Instead, look slightly to the right. Use the right edge of the roadway as your steering guide.
- If the vehicle behind you is being driven with its brights on, switch your rearview mirror to the "night" position to reduce glare.
- Don't use the "night" position on your rearview mirror in urban areas as you lose visibility in dense traffic.
- If a pedestrian or an animal runs out on front of the car, steer around it; don't slam on the brakes. It takes longer to stop than to steer.
- If your car breaks down, pull to the side of the road and onto the shoulder. Then move away from the car. Place one flare or reflective triangle in front of the vehicle, one behind the vehicle and one 100 feet behind the second device. Turn on your hazard and interior lights. Then wait for a police officer or tow truck operator to assist you.•

*Reprinted with permission from Family Safety & Health, published by the National Safety Council, 1121 Spring Lake Dr., Itasca, IL 60143*

| Date | Event | Sponsor/Contact | Location |
|---|---|---|---|
| February 24-26 | Identification & Treatment of High Hazard Locations, Norhtwestern University | DOT&PF Jim Bennett @ (907) 451-5322 | Anchorage, Alaska<br>Sheraton Hotel |
| March 2-4 | Alaska Transportation Week: Conference on NQI & University of Alaska Fairbanks Transportation Forum | Alaska T2 Center/ DOT&PF/FHWA/AGC/UAF<br>Sharon McLeod-Everette @ (907) 451-5323 | Anchorage, Alaska<br>Sheraton Hotel |
| March 18-19<br>March 19-20 | Traffic Calming & Roundabouts | Alaska T2 Center/ ITE Jim Bennett @ (907) 451-5322 | Anchorage, Alaska<br>Fairbanks, Alaska |
| March 22-25 | Aspalt Conference and Expo | *Asphalt Contractor, FHWA, NHI Gale Johnson* @ 800-355-1860, or Lucy Avera @ 800-254-2123 | Atlanta, Georgia<br>Cobb Galleria |
| March 23-25 | Governor's Safety & Health Conference | Alaska Advisory Council | Anchorage, Alaska<br>Egan Convention Center |
| April 19-22 | 1998 North American Snow Conference | American Public Works Association, Alberta Chapter APWA/CPWA, City of Edmonton, Apwa @ (816) 472-6100 | Edmonton, Alberta, Canada |
| April 22-24<br>April 27-29 | FHWA Demonstration Project No. 82- Mechanically Stabilized Earth Walls & Reinforced Soil Slopes | DOT&PF Sharon McLeod-Everette @ (907) 451-5323 | Anchorage, Alaska<br>Juneau, Alaska |
| May 11-15 | North American Travel Monitoring Exhibition & Conference (NATMEC '98) | NCDOT, Transport Canada, FHWA, AASHTO, TRB, ITRE Pam Cloer @ (919) 515-7990 | Charlotte, North Carolina<br>Adams Mark Hotel |
| May 17-20 | Conference on Transportation, Land Use and Air Quality | FHWA, ASCE @ 800-548-2723, fax (703) 295-6144, or or e-mail conf@asce.org | Portland, Oregon<br>Benson Hotel |
| May 23-27, 1999 | Seventh Annual International Conference on Low-Volume Roads | Transportation Research Board | Baton Rouge, Louisiana<br>Louisiana State University |

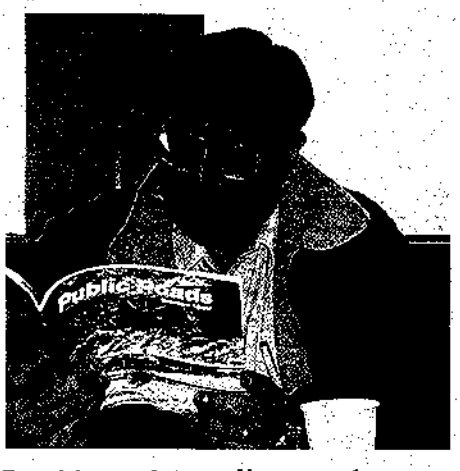
## *Meetings Around Alaska*

| Society | Chapter | Meeting Days | Location |
|---|---|---|---|
| ASCE | Anchorage | Monthly, 3rd Tues., noon | Northern Lights Inn |
| | Fairbanks | Monthly, 3rd Wed., noon | Captain Bartlett Inn |
| | Juneau | Monthly, 2nd Wed., noon* | Westmark Juneau Hotel * except June-August |
| ASPE | Anchorage | Monthly, 2nd Thurs., noon | West Coast International Inn |
| | Fairbanks | Monthly, 1st Fri., noon | Captain Bartlett Inn |
| | Juneau | Monthly, 2nd Wed., noon* | Westmark Juneau Hotel * except in June-August |
| ASPLS | Anchorage | Monthly, 3rd Tues., noon | Executive Cafeteria, Federal Building |
| | Fairbanks | Monthly, 4th Tues., noon | Ethel's Sunset Inn |
| | Mat-Su Valley | Monthly, last Wed., noon | Windbreak Café; George Strother, 745-9810 |
| ITE | Anchorage | Monthly, 4th Thurs., noon | Sourdough Mining Company |
| IRWA | Sourdough Ch. 49 | Monthly, 3rd Thurs., noon** | West Coast International Inn **except July & Dec. |
| | Arctic Trails Ch.71 | Monthly, 2nd Thurs., noon# | Last Frontier Club #except July & Dec. |
| | Totem Ch. 59 | Monthly, 1st Wed., noon | Mike's Place, Douglas |
| ICBO | Northern Chapter | Monthly, 1st Wed., noon | Zach's Sophie Station |
| AWRA | Northern Region | Monthly, 3rd Wed., noon | Room 531 Duckering Bldg., University of Alaska Fairbanks |
| | | Brown Bag Lunch | Larry Hinzman, 474-7331 |
| PE in Government | Anchorage | Monthly, last Fri, 7am | Elmer's Restaurant |

# Ben Frantz Finds Enjoyment and Pride Living on the North Slope

*by Chris Janssen*

Ben Frantz is the Director for the Department of Municipal Service for the North Slope Borough. His position encompasses responsibility for Barrow as well as seven other communities. His department provides power and water for the community of Barrow. He oversees power generation and distribution, water production and distribution, road and airport operations and maintenance, garbage and sanitation services, billings and collections, public transportation, laundry facilities, landfill services, and facilities maintenance support for the other communities. He enjoys the "variety, volume, and travel required to address the employee and service needs" he finds in his job. In addition to his responsibilities as Director, Ben has found time to be on the Board of Directors for Barrow Utilities and Electric Co-op Inc. for the last seven years. He is currently President of the Board. Ben has been a great help to T2. He recently filled in for our representative from the North Slope Borough, Richard Reich, and provided several articles for the newsletter.



Ben was born in Fairbanks and has spent the majority of his life in Alaska, including a few years in Kaktovik and 30 years in Barrow. The longest stretch of time he has spent living outside Alaska was six months on the Big Island of Hawaii. It seems the fishing and warm weather just weren't enough to keep him there, after all, it is a bit difficult to do long-distance snowmachining on the islands. Ben has made a trip from Barrow to Fairbanks in 1994, as well as a trip from Barrow to Anatuvuk Pass in 1995. He has a trip in excess of 800 miles planned for March 1998. Ben will be traveling to Schrader Lake; his reason: "Great trout fishin'!" He manages to find time to go boating, fishing, and hunting in his busy schedule. He even has a few tales to tell about his adventures, like a certain Blue Marlin.

Ben's family holds an important role in his life. He is married to Freda, the Home School Facilitator for Barrow High School. They have five children: Jack, 13, Brower, 12, Michelle, 11, Ben II, 9, and Krista, 7. They keep Ben busy with school-related activities.

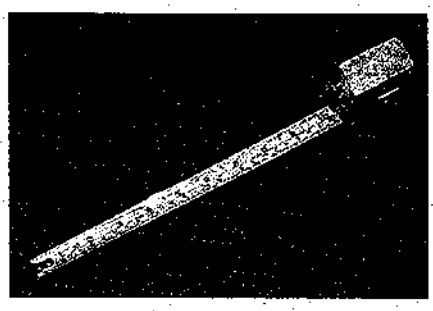
Ben's parents and uncle have played an important role in determining who he is today. His father, Jack O. Frantz, came from Ohio to work on the DEW line. He instilled a work ethic in Ben and taught him the importance of being a provider. His mother, Elizabeth Akootchook Frantz, taught him to be proud of being a member of the North Slope community "through knowledge of the harshness of her life". His uncle, Perry Akootchook, taught him to smile about life and be optimistic by "his ability to capture and use the technology of his day." From all of this, Ben has formed a personal philosophy, which reflects in his life: "Be a better listener than speaker. Take stock in the knowledge of the past. Don't take things too seriously. Explore!"

His background is as full as his current endeavors. He graduated from Mt. Edgecumbe High School in 1972 and went directly into Solar Turbine School in San Diego for Barrow Utilities. He stayed with the Co-op over 11 years. During this time, he became Water, Sewer, and Powerplant foreman at the age of 23. He advanced to become superintendent, then operations manager. He was also responsible for managing gas and electrical operations, maintenance, and construction. He began his employment with the North Slope Borough, with two years as supervisor for Atquasuk Utilities. He has continued to keep up his education with numerous technical and management courses.

Ben has proven to be an asset to the Borough and the communities he serves. His hard work and efforts to improve the communities are continuing. He has helped to install GPS on buses, enabling passengers to be notified via television broadcast of a bus' location. Ben is constantly searching for ways to improve his own understanding and that of his employees. •

# Not Much Changes But the Measuring Tape

You can't tell by looking at it, but the recently completed FBI regional building in Washington, D.C. is constructed in the metric system. In March of 1996 and again this April (1997), the NIBS Construction Metrication Council met adjacent to the building site and quizzed construction personnel about their metric experiences. On the positive side, the $60 million, 8-story building was delivered on time and within budget. Contractor and construction personnel quickly learned to use metric measures. The prime contractor, Clark Construction, is looking forward to more metric work.



There were some teething problems, though. Smaller contractors sometimes had difficulty submitting shop drawings in metric dimensions. Longer lead times were needed for obtaining (and restocking) modular metric products such as suspended ceiling system components. And local government reviews for water and sewer plans required special handholding.

The FBI building's construction superintendent, John Morrow, stated that none of the subcontractors or any of the 100 or so entities involved in the project have claimed to have lost money due to metrication. "If you lose money on metric," Mr. Morrow said, "you have a serious management problem. It means you aren't applying yourself." In many cases, the subs and suppliers seem to have made their bids based on doing the job conventionally, assuming correctly that any metric-related problems could be resolved on the job site.

Judging firm the results of numerous metric projects under construction around the country, the FBI regional office building is typical. In almost all cases, costs and schedules are unaffected, and after a short learning period everyone on the job settles into metric use. The availability of a few modular metric products remains a problem, but one that is diminishing as the number of metric projects increase.

After, all, not much changes but the measuring tape.•

*Reprinted with permission from Construction Metrication, 2nd Quarter, 1997.*

## *LTAP on the Internet*

*by Sue Grant, Information Specialist*

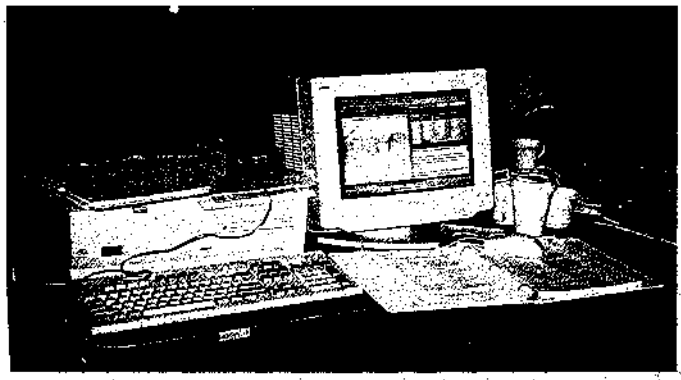
If you have an Internet connection and are interested in transportation issues, try the new LTAP site at http://www.ltap.org.

Our newsletter as well as the newsletter articles from all fifty states for the 1992 through 1994 can be searched under the "LTAP News Search" found here. Using key words, you can find articles on the topics like gravel, signing, asphalt, and potholes. Then you can choose to read a short summary or the entire article as it appeared in the newsletter. You can limit your search by state or by year. Find out what other states have to say about specific topics, or look for an article you remember reading here in *The Connection*.

Under "Other LTAP Centers" is information on twenty-seven state LTAP centers. You won't find South Dakota listed yet. But by looking the other center's information. You can find listings of other useful Transportation sites on the Web.

The new LTAP site is a good place to begin your Web search for transportation-related topics. It is easy to find and easy to use. If you have access to the Internet, give it a try. •

*Reprinted from The Connection, Vol. 10, No. 2. Summer 1997.*



# Make Technology Work for You- *Find It Fast on the Internet*

If you search the Internet daily for information on a particular topic or topics, you've probably thought at one time or another, "Hey, I thought this technology was supposed to help me get information *faster,* not take up my whole day with dead-end searches and tons of useless information." Well, you can speed up your information search with InReference (www.reference.com). InReference will help you narrow down your search with the use of subjects, key words, and author's name, etc. Register as a user and InReference will even search through mailing lists and newsgroups for you and e-mail the results.

*Need a zip code in a hurry?* Or maybe you have a zip code, but not the four-digit extension the speeds up the process. With the National Address browser (www.semaphorecorp.com/cgi/form.html), all you have to do is enter a street address, and presto, you've got the zip + 4 for that address.

*It works the other way too.* Enter a zip code and find the location that belongs to those zip code numbers. Say you want to call a company for information. You know the company is located in New Jersey, but you don't know its exact location. Simply key in the company's name and the National Address browser will give you the name of the city or town where the company is located.

*Looking for something a little more personal?* Say, a person? In that case, hook yourself up to Switchboard (www.switchboard.com). Switchboard is the leading Internet search directory with 100 million residential and business listings compiled from White Pages all across the United States. It's like having every town's telephone book at your fingertips. (Actually it's better.)

Switchboard will even help you if you're looking for someone named Smith in Manhattan-if that's all the information you have.

While you're there, look yourself up. If the information is not there or is incorrect, Switchboard allows you to change it, remove it, and have an alternate or second listing, which can be used to list your business or maiden name. You can also hide certain information to protect your privacy.

*If you're in the market for a new car, or a previously owned model,* somebody has probably told you that you should go get the Blue Book and look up what the car you want is really worth before you go wrangle with that salesperson. And that somebody was right. All you have to do is check the Kelley Blue Book (www.kbb.com) on the Internet. Enter the automobile you're looking for with the options you desire, and you can see the dealer's invoice and MSRP (Manufacturer's Suggested Retail Price) for new cars. And you can find out the values of used vehicles on a state per state basis, as well as information mileage, equipment, and condition. Armed with all this information, you'll get the deal you deserve, not the deal the salesperson thinks you deserve.•

*Reprinted by permission. Copyright© 1997, Women as Managers, The Economics Press, Inc., Fairfield, NJ 07004-0232; 1-800-526-2554. http// www.epinc.com*

# E- Mail the Alaska T2 Advisory Board Members

Have any questions or comments about what is going on within T2 or around the state? The T2 Advisory Board would be happy to hear from you.

Mike Downing, Chairman:
Mike_Downing@dot.state.ak.us
Tamar diFranco, Engineer Program Manager:
Tamar_DiFranco@dot.state.ak.us
George Levasseur, DOT&PF Southcentral:
George_Levassuer@dot.state.ak.us
Tom Ackerley, Kenai Peninsula Borough:
TAckerly @borough.kenai.ak.us
Billy Connor, Acting Research Manager:
Billy_Connor@dot.state.ak.us
Drew Sielbach, FHWA Representative:
dsielbach@intergate.dot.gov
Jim Swing, Matinuska-Susitna Bororugh:
bwinkler@msb.co.mat-su.ak.us
Richard Reich, North Slope Borough:
rreich@co.northslope.ak.us
Marie Messimg, Bureau of Indian Affairs:
mmessing@smp.ak.bia.gov
Trent Mackey, Fairbanks Borough:
direct@co.fairbanks.ak.us
Ernie Mueller, Juneau Area,
Ernie_Mueler@mail.ci.juneau.ak.us
Paul Knysh, Yukon Territory: Pjknysh@gov.yk.ca•

# "Watershed" Partnership Brings About Engineering Controls

## *Industry-wide project receives kudos at NAPA meeting*

By Lucy T. Avers

Calling it an "extraordinary partnership" which will open the way for industries all over the world, the director of the National Institute of Occupational Safety and Health (NIOSH) applauded the voluntary initiative to engineer paver fumes away from hot mix asphalt (HMA) paving crew members. The initiative is considered by many a landmark accomplishment for the HMA industry.

NIOSH director Linda Rosenstock celebrates two achievements out if the three-year project: Not only does the industry now have the tools to protect workers, but an industry-wide partnership was established as stakeholders came together. The partnering, she says, is a "novel" approach for both NIOSH and the agencies involved, including the Occupational Safety and Health Administration (OSHA) and the Federal Highway Administration (FHWA). Speaking at the National Asphalt Pavement Association (NAPA) annual conference in Orlando, Fla., Rosenstock says she applauds this effort, "because we will learn from the partnering effort with NAPA. The human factor involved will affect other industries, throughout the world."

The initiative agreed to in a NIOSH stakeholders' meeting held in July 1996, calls for engineering controls on all new pavers in the 16,000lb. (7,200 kilograms) or higher class manufactured after July this year. The controls are required to be 80 percent efficient- meaning they must pull 80 percent of fumes away from the worker- and must include an indicator device to show they are working properly. Retrofit kits are available for pavers currently in use.

The stakeholders' meeting is considered by many to be as significant as implementing the engineering controls. Rosenstock calls it a "watershed meeting about how labor, agency, and industry could sit down together."

### Improving the work environment

It was at NAPA's annual conference in 1993 that member Bob Thompson, of Thomas-McCulley Co., Belleville, Mich., approached paver manufacturers such as Don Brock, of Astec Industries, to discuss the possibility of engineering pavers to vent the fumes away from crew members. April Swanson, senior research chemist for Amoco Oil CO., and chair of the technical advisory committee for the Asphalt Institute, Lexington, Ky., says the NAPA engineering controls task force was formed soon after, and started the think of ways to improve the work environment for paving crew members. The industry coalition, she says, was essential in the effort. The group established an evaluation program that consisted of factory/lab tests on pavers, and field evaluation tests.

Paver manufacturers Barber-Greene/Caterpillar Inc., DeKalb, Ill., Blaw-Knox/ Ingersoll-Rand, Mattoon, Ill., Cedar Rapids Inc., Cedar Rapids, Iowa, Champion Road Machinery Ltd., Chambersburg, Pa., and Roadtec Inc., Chattanooga, Tenn., participated in the evaluation program. The manufacturers have all signed the voluntary initiative, as have NAPA, CSHA, FHWA, and the International Union of Operating Engineers.

Why did the industry take on this initiative? "Fumes are listed as an OSHA priority," Swanson says, "it sets clear standards for the industry, it is expedient to achieve benefits, and it improves the worker's environment." In

*continued from page 17*

performing research, the coalition discovered several things: that worker exposure is well below current OSHA standards, and health studies regarding worker exposure to carcinogens are not conclusive. The group found the controls reduce irritation effects, produce fewer particulates, and offer crewmembers a cleaner, cooler workplace.

More acutely, though, says Rosenstock, is the idea that crewmembers working near exposure sources were experiencing more irritation from fumes. "That tells us the symptoms seen to be the problem," she says, adding, "The reason for putting controls in the first place, is these materials can be irritants. Workers have more symptoms than those who don't (work in this environment)." Plus, says Rosenstock, "developing new technology allows us to look at people instead of rats."

Mike Acott, NAPA president, agrees. "We set up a positive partnership approach with NOISH and OSHA as we moved forward," with the goal of improving working conditions for paving crew members," he says. That partnership, says Acott, has gained NAPA the "opportunity to have input on further studies in the effects of the controls." As a matter of fact, several NAPA members have since been invited to sit on a NIOSH expert task group to set priorities for safety issues and research needs for street and highway construction.

"The bigger picture, though, is the process," says Acott. "You can consume resources with expenses that don't contribute to solutions. We took a proactive stance," instead.

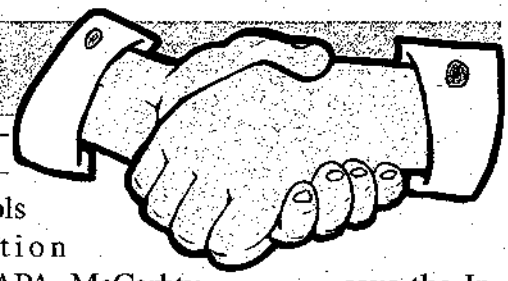
## Looking into the future

NIOSH views the initiative as a first step. In fact, other issues remain, says Rosenstock. "We want to look at how to deal with small pavers and retrofitting existing pavers. We also need to get information to the worker."

Others in the industry say small pavers are the next targets. A NAPA committee member stated during the association's Orlando meeting: "The union says small paver manufacturers need to do something; their number isn't up yet," but will be soon.

Tom Brumagin, NAPA director of environmental services, says more stakeholder meetings are needed to plan training materials for crewmembers.

Bernie McCarthy, vice president of governmental affairs for the Asphalt Institute, Lexington, Ky., says the credit for bringing about the engineering controls implementation should go to NAPA. McCarhty says the Institute got involved in the project through member companies and the efforts of Swanson, who chaired the testing protocols subcommittee.



"NAPA spearheaded the engineering controls implementation," says McCarthy. The Institute provided technical expertise because it was already doing work on fumes when NAPA started looking at engineering controls. NIOSH got involved in engineering controls from NAPA's initiative, he says. The end result was shared information.

McCarthy says one of the greatest achievements from the whole project is that the data shows workers are not exposed to high levels of asphalt fumes. "While studies continue, no adverse effects from asphalt fumes have been established," he says.

## Contractors applaud the efforts as well

NAPA contractor members are happy with the results of the stakeholders' meeting, and see the partnership as a positive step. Tom Ritchie, incoming NAPA chairman, says the engineering control project has been "a massive effort. It has literally consumed the industry for years."

Ritchie sees the result as "a respite" from too much government intervention in the workplace and related issues. "It has been a grueling experience," he continues, "and in many ways is a watershed. NIOSH has figured out their interests should be the same as ours and can be accomplished with us as opposed to head-on."

John Spangler, Milestone Construction, Indianapolis, Ind., whose company partnered with one of the paver manufacturers to test a fumes control apparatus, encourages all contractors to jump in the bandwagon.

Speaking at the NAPA conference, Spangler says, "everyone should make the commitment, as you buy a new paver, to make this change, because it improves the working environment for workers."•

*Reprinted with permission from The Asphalt Contractor, April 1997.*

## *New Publications Available for Loan*

**Place a check by the publications that you want to borrow.**

_____Iron Amine Complex Soil Stabilization, Report 93-10, Oregon State University / Alaska DOT, June 1995

_____Design Guidelines for the Control of Blowing and Drifting Snow, SHRP-H-381, National Research Council, 1994

_____Repair of Fire-Damaged Concrete Pavement on ID-45 Near Angus, TX, Research Report 1948-1F, Center for Transportation Research, Austin Texas, January 1995

_____Effects of Presence of Light Poles on Vehicle Impact of Roadside Barriers, FHWA/OH-95/017, Ohio DOT, August 1995

_____Implementation Guidelines for Actuated Controllers in Coordinated Systems, Research Report 1255-2F, Texas Transportation Institute, February 1995 (rev)

_____Development of a Jointed Concrete Pavement Database for the State of Texas, CTR 0-1342-2, Center for Transportation Research, Austin Texas, September 1994

_____Updating and Maintaining the Rigid Pavement Database, CRR 0-1342-3F, Center for Transportation Research, Austin Texas, November 1994

_____Accident Research Manual, FHWA-RD-80-016, USDOT/FHWA, February 1980

_____Absenteeism and Turnover: A Construction Industry Cost Effectiveness Project Report, Report C-6, The Business Roundtable, June 1982

_____Local Low Volume Roads and Streets, FHWA-SA-93-006, USDOT/FHWA, November 1992

_____Consideration of the 15 Factors in the Metropolitan Planning Process, NCHRP Synthesis 217, National Research Council, 1995

_____Guidelines on the Use of RAP in Routine Maintenance Activities, Research Report 1272-2F, Texas Transportation Institute, April 1994 (rev)

_____Maintenance Level of Service Evaluation Procedure for Texas, A, Research Report 1968-1F, Texas Transportation Institute, December 1994

_____Transitioning to the Metric System - Implementation Guide, APWA, 1995

_____Financing Alternatives for Texas Highways - Summary Report, Summary Report 1277-1S, Texas Transportation Institute, September 1993

_____Moose Vehicle Accidents on Alaska's Rural Highways, Alaska DOT, 1995

_____TCM Analyst 1.0 Users Guide, Research Report 1279-7, Texas Transportation Institute, November 1994

_____How to Develop and Effective Plan for Erosion and Sediment Control, ASCE

_____How to Present Like a Pro - Getting People to See Things Your Way, McGraw Hill, 1991

_____Effect of Traffic and Wind Loads on a Tied-Arch Bridge, Report 7-1982-2, Texas Tech University, Lubbock, TX, December 1994

_____Wind Load Effects on Signs, Luminaries and Traffic Signal Structures, Research Study 11-5-92-1303, Texas Tech University, Lubbock, TX, February 1995

## *New Videos Available for Loan*

**Please place a check by the videos you would like to borrow.**

_____Minnesota Local Road Research Board, September 1995, 11:29, ID# 441

_____Staying Fit at the Computer, Balanced Living Incorporated, ID# 442

_____Introducing... Business Vision, With Dr. Ken Blanchard. , 10:00, Video Publishing House, Inc., ID# 443

_____Flagger Training: For Construction Maintenance & Utility Operations, North Carolina State University, January 1996, Instructors Guide Included. , ID# 444

_____Traffic Regulating - Flagging: Construction, Maintenance, and Utility Work, Michigan Department of Transportation, 1996, 21:00, Includes Traffic Regulators instruction

_____Snow & Ice Control: Promotional Video Tape, Minnesota T2 Center, 07:00, Promotional video tape from a satellite conference; cannot be duplicated.

_____What is Anti-Icing?, USDOT FHWA and US Army CRREL, 09:00, Testing and Evaluation Project 28, ID# 447

_____Anti-Icing for Maintenance Personnel, USDOT FHWA and US Army CRREL, 12:45, Project 28 - "Anti-Icing", ID# 448

_____National Teleconference on The Reauthorization of ISTEA, Center for Transportation and the Environment, August 14, 1996, ID# 449

_____Right of Way Mowing Safety, VISTA, 1996, ID# 450

_____Utility Cut Repair: Doing it Right, Minnesota Local Road Research Board, September 1996, 11:00, ID# 451

_____Quickchange Moveable Barrier, Barrier Systems, Inc., ID# 452

_____How to Be a Better Trainer, Career Track Publications. Techniques for stimulating, motivating and teaching your trainees the most in the shortest time. By Helen Sutton.

_____Implementing Self-Directed Work Teams, Career Track Publications. The breakthrough method for increasing productivity, sparking innovation and reducing costs.

_____Developing a Customer Retention Program, Career Track Publications. How to increase repeat business and build customer loyalty with Lisa Ford. Four tape series, with workbook .

_____Exceptional Customer Service, Career Track Publications, By Lisa Ford. Four tape series with workbook, ID# 456

_____Making Safer Roads, Insurance Institute for Highway Safety, 1995, 12:00, ID# 457

_____Idea Store: Edition VIIII, Pennsylvania DOT, December 1993, 06:15, Key Tags, ID# 458

_____It Always Happens to the Other Guy, John Deere Training Center, 20:40, ID# 459

_____Safety Training for Repair Technicians, VISTA, 1996, ID# 460

_____Transport Trailer Safety, VISTA, 1995, ID# 461

These publications may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Contact the **T2 office** at (907) 451-5320 or TDD: (907) 451-2363.

**Please print your name and address below, and mail, fax, or E-mail to:**

**Alaska Transportation Technology Transfer Center**
**Local Technical Assistance Program (LTAP)**
**Department of Transportation and Public Facilities**
**2301Peger Road M/S 2550**
**Fairbanks, AK 99709-5399**
**Fax: (907) 451-5340**
**E-mail to: Sharon_McLeod-Everette@dot.state.ak.us**

**Name:**_____ **Title:**_____ **M/S:**_____
**Organization:**_____
**Address:**_____
**City:**_____ **State/Province:**_____ **Zip:**_____
**Phone:**_____ **Fax:**_____
**E-mail:**_____

**Advancements in Concrete Materials Technology, Transportation Research Record 1532.** This report covers materials and construction as it pertains to this topic.

**A Laboratory and Field Evaluation of Required Material Properties for Concrete Repairs, October 1996, FHWA/TX-97/1412-2,** *Traub, Daniel W.; David W. Fowler; and Ramon L. Carrasquillo.* This report describes the study investigating the material properties necessary to ensure a successful concrete repair and selection of the most appropriate repair material based upon the environmental conditions.

**Arctic Research of the United States, Fall/Winter 1996.** This journal contains reports on current and planned U.S. Government-sponsored research in the Arctic; reports of Arctic Research Commission(ARC) and Interagency Arctic Research Policy Committee(IARPC) meetings; other current and planned Arctic research, including that of the State of Alaska, local governments, the private sector, and other nations

**Assessing Vehicle Detection Utilizing Video Image Processing Technology, September 1996, FHWA/TX-97/1467-4,** *Hartman, Duane; Dan Middleton; and Dwayne Morris.* This report describes analyzed detection capabilities of a trip-wire video image processing system in a freeway setting.

**Comparison of the 1994 *Highway Capacity Manual's* Ramp Analysis Procedures and the FRESIM Model, NCHRP Report 385.** This report describes the results of comparing two methods for analyzing the operation of ramp-freeway junctions. The contents of the report are of interest to practitioners who use the Highway Capacity Manual or FRESIM to analyze freeways. Both of these methods were used to analyze an independent database, with the analysis results compared to the actual field measurements.

**CRREL Special Report 97-4, March 1997, Selection of Confluence Sites with Ice Problems for Structural Solutions,** *Tuthill, Andrew M., and Anthony C. Mamone.* This study examines a broad range of ice problems at river confluence sites, grouping the sites into four categories. This report describes the ice problems at the eight selected sites, focusing on the relationship between channel geometry, hydrometeorological factors, and the historical record of ice events. For each site, tentative structural solutions are proposed.

**CRREL Special Report 97-10, April 1997 Proceedings of the International Symposium on Physics, Chemistry, and Ecology of Seasonally Frozen Soils, Fairbanks, Alaska, June 10-12, 1997,** *Iskandar, I.K.; E.A. Wright; J.K. Radke; B.S. Sharratt; P.H. Groenevelt; and L.D. Hinzman.* This paper emphasizes the physical nature of frozen soil and the importance of freezing and thawing to the transport of water and heat at the Earth's surface, and the chemistry and biology of the soil system as affected by freezing and thawing.

**Current Research on Roadside Safety Features, Transportation Research Record 1528.** This report covers highway and facility design as it pertains to this topic.

**Determination of Pile Drivability and Capacity from Penetration Tests, Volume 1: Final Report, May 1997, FHWA-RD-96-179,** *Rausche, F; G. Thendean; H. Aboumatar; G.E. Likins; and G.G. Goble.* Reports on the research conducted on the potential improvement of dynamic wave equation analysis methodology using in-situ soil testing techniques. Recommendations derived from in-situ soil testing, static uplift or torque test, and static compressive tests, pertain to the current soil model and to proposals for future changes.

**Development of a Multi-Vendor Environment for Traffic Controllers, November 1996, FHWA/TX-97/1389-1F,** *Seymour, Edward J.* This report describes the extent different vendors' traffic controllers can be effectively used in closed-loop signal systems in a manner acceptable to Texas DOT engineers and maintenance personnel. The findings of the work includ a recommendation for TxDOT to actively get involved in the National Transportation for ITS Protocol (NTCIP) and begin deployment of NTCIP compatible systems as soon as practical. The communications study also included a recommendation that TxDOT should actively be involved in the development of Advanced Transportation

Controller standards, including controllers, cabinets, and software.

**Development of a Procedure for the Structural Evaluation of Superheavy Load Routes, November 1995, FHWA/TX-97/1335-3F,** *Jooste, Fritz J., and Emmanuel G. Fernando.* This report documents the development of the methodology for permitting superheavy load moves. The analysis of damage potential under superheavy loads concerns the likelihood of a rapid, load-induced shear failure as opposed to the long-term accumulation of permanent deformation and fatigue due to repeated load applications.

**Evaluation and the Use of Waste and Reclaimed Materials in Roadbase Construction, October 1996, FHWA/TX-97/1348- 2F,** *Saeed, A., and W.R. Hudson.* This report is the second and final report for research project 0-1348, "Waste and Recycled Materials in Roadbase, Except Glass." It summarizes material location and availability survey of commercial sources; the Waste and Reclaimed Materials (WRMs) evaluation system; and the results of the laboratory testing undertaken to develop specifications.

**An Evaluation of Highway Runoff Filtration Systems, FHWA/TX-96/1943-6,** *S. Tenney; M.E. Barrett; J.F. Malina, Jr.; R.J. Charbeneau.* The Texas DOT constructed runoff control systems that impound and filter highway runoff. They applied this system to Edwards Highway 45 in 1993 and 1994. This report evaluated the runoff system, and documents the numerous problems with these systems.

**An Evaluation of the Use and Effectiveness of Temporary Sediment Controls, FHWA/TX-96/1943-2,** *Michael E. Barrett; John E. Kearne; Terry G. McCoy; Joseph F. Malina, Jr.; Randall J. Chargeneau.* An inventory of temporary runoff controls installed on Texas DOT construction sites indicated that the most commonly used erosion and sediment controls are rock berms and silt fences. The most inexpensive control, sediment ponds, was used more frequently in earlier stages of construction.

**Evaluation of the Use of Coal Combustion By-Products in Highway and Airfield Pavement Construction, November 1996, Research Report 2969-1F,** *Saylak, Donald; Cindy K. Estakhri; Rajan Viswanathan; Dustin Tauferner; and Harsha Chimakurthy.* The objective of this study was to explore the benefaction and utilization of coal combustion by-products (CCBPs) as low-cost alternate aggregates and stabilizers in roadway and airfields construction. Results from field trials utilizing CCBPs in roadbases indicate good to excellent performance characteristics and negligible environmental impact.

**FHWA Study Tour for Bridge Maintenance Coatings, FHWA-PL-96-031.** This report discusses the FHWA's Scanning Program's pursuit for technology transfer of steel bridge maintenance coating methods with the European highway community.

**FHWA Study Tour for Highway/Commercial Vehicle Interaction, FHWA-PL-96-027.** This report discusses the FHWA's scanning trips through North America and Europe to discover and report on current practices, technologies and knowledge of highway/commercial vehicle interaction.

**Final Environmental Impact Statement: Roadside Pest Management Program, Volume 1, Volume 2, & Volume 3, Tx-97/1933-3F,** *Danise S. Hauser and Wayne McCulley.* This report presents recommendations, guidelines, and mitigation measures for mechanical, chemical, cultural and biological methods that Texas DOT is using to develop an integrated pest management program.

**Geotechnical Engineering Circular No.2, Earth Retaining Systems, FHWA-SA-96-038,** *P.J. Sabatini; V. Elias; G.R. Schmertmann; R. Bonaparte*. Reports on earth retaining systems, including methods of construction, components, contracting practices, and construction monitoring and inspection practices. It includes design/analysis procedures and references for detailed information for highway planning, design, and construction specialists.

**Highway Snowstorm Countermeasures Manual, September 1996, Snowbreak Forest Book, *Hokkaido Development Engineering Center Co., Ltd.*** This manual describes research and resources relating to snowbreak forests to counter blowing snow in Hokkaido. •

*"Ignition" continued from page 4*

chased an ignition oven. The Central Region Laboratory has completed a feasibility study of using the ignition oven for determining asphalt cement content and aggregate gradations from asphalt concrete core samples and bulk samples. The study included three parts: (1) determining the aggregate correction factor and the effect of different temperatures, (2) determining the accuracy of the asphalt cement content and aggregate gradation, and (3) determining the potential of using asphalt concrete cores normally taken to measure density.

The aggregate correction factor indicates how much of an aggregate is burned up when the asphalt is burned away from sample. The aggregate may also breakdown under high temperatures. Different aggregate types have different correction factors. The accuracy of the asphalt content and aggregate gradation was determined by comparing results from nuclear asphalt content gauge and extraction method gradation. The question of using asphalt concrete core samples arises because the size of the core determines the accuracy of the testing.

The Central Region Lab found that the asphalt correction factor needed to be determined from the asphalt mix and not the dry aggregate. The correlation of the ignition method to existing tests indicated that the ignition method could accurately determine the asphalt cement content of a sample and aggregate gradation. The asphalt concrete core is too small to provide an accurate determination of the asphalt cement content or aggregate gradation.

DOT&PF is running ignition tests with standard methods on construction projects. Since the asphalt concrete core taken for density is too small to provide accurate asphalt content and gradation test results, DOT&PF will use present methods for now. •


## $T^2$ Center Staff

***Sharon McLeod-Everette**, Director 907/451-5323, Sharon_McLeod-Everette@dot.state.ak.us*

***James L. Bennett**, P.E., Engineer, 907/451-5322, Jim_Bennett@dot.state.ak.us*

***Christina L. Janssen**, Newsletter Editor, 907/451-5321, Christina_Janssen@dot.state.ak.us*

## $T^2$ Center Advisory Board

***Mike Downing**, Chair, Headquarters DOT&PF*

***Tamar diFranco**, Engineer Program Manager, Headquarters DOT&PF*

***Rufus Bunch**, City of Fairbanks*

***Drew Sielbach**, Federal Highway Administration*

***George Levasseur**, Southcentral District DOT&PF*

***Billy Connor**, Acting Research Manager DOT&PF*

***Marie Messing**, Bureau of Indian Affairs*

***MSgt. David Luera**, Elmendorf AFB*

***Trent Mackey**, Fairbanks North Star Borough*

***CMSgt. Craig Powley**, Eielson AFB*

***David Mumford**, Municipality of Anchorage*

***Richard Reich**, North Slope Borough*

***Jim Swing**, Matanuska-Susitna Borough*

***Ernie Mueller**, City and Borough of Juneau*

***Paul Knysh**, Yukon Territory Government*

***Tom Ackerley**, Kenai Peninsula Borough*

***Web page: http://www.dot.state.ak.us/external/state-wide/t2/t2-index.html***


*This newsletter is funded by the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities. The material contained herein does not necessarily reflect the views of the Alaska Department of Transportation, Federal Highway Adminstration or the $T^2$ staff. Any reference to a commercial product or organization in this newsletter is only for informational purposes and is not intended as an endorsement.*

ALASKA TRANSPORTATION TECHNOLOGY TRANSFER

***Local Technical Assistance Program***
***Department of Transportation and Public Facilities***
***2301 Peger Road M/S 2550***
***Fairbanks, AK 99709-5399***

***Return Service Requested***

**BULK RATE**
**U.S. Postage**
**PAID**
**Fairbanks, AK**
**Permit No. 87**