TECHNOLOGY FOR

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Local Technical Assistance Program

IN THIS ISSUE...

Apologies

We apologize for the typographic errors throughout the Winter 1996 issue of this newsletter. Our poor proofing resulted in a newsletter we are not particularly proud of; you have our commitment that future newsletters will be proofed from back to front (all you editor-types out there know what we mean). And we actually learned something positive from this embarrassing situation. Many, many of you care about the newsletter, its content, and its quality. Thank you to all of you who so kindly, and in many cases, gently, pointed out the problems.

The Alaska T2 Center Staff

New Standards Proposed for Centerline and Edge Line Markings

by Eugene Calvert

If proposed guidelines are adopted by the Federal Highway Administration (FHWA), center line and edge line markings will be required on some low volume roads and streets where they are not currently required. An amendment to the Manual on Uniform Traffic Control Devices (MUTCD) has been proposed to establish a national standard for defining which types of roads must have center line or edge line markings. The proposed standards require that center lines and edge lines be placed on paved, undivided 2-way streets and highways that meet certain criteria based on average daily traffic (ADT), number of lanes, and roadway width. It is proposed to replace the fifth paragraph of Section 3B-1 of the MUTCD with the following:

Center Line Marking

Center line markings shall be placed on paved, undivided 2-way streets and highways having the characteristics as follows:

1. Rural arterials and collectors with roadways 18 feet or more in width with an ADT of 1000 or more.
2. Urban arterials and collectors with roadways 20 feet or more in width and an ADT of 2000 or more.
3. Roadways with three lanes or more.

Center line markings should be placed on paved, undivided 2-way streets and highways having the following characteristics:

1. Rural roadways 18 feet or more in width with an ADT of 500 or more;

continued on page 4

Fourth Annual Bridge Building Competition

Whitehorse, Yukon, Mar.3-6, 1997

by Paul Knysh, P.E., T2 Board Member, Yukon Territory

This year, National Engineering Week was March 3- 6, and for the fourth year, the Annual Bridge Building Competition was a highlight for the Yukon. Organized and supported by both the Association of Professional Engineers of Yukon and the Innovators in the Schools program, the competition involved 270 students from grades 4 to 12 and 40 entrants in the Open category. The competition was held across the territory with testing stations in Dawson, Faro, and Whitehorse. Participants traveled from Haines Junction and Teslin to Whitehorse to be involved. The objective of the competition was to illustrate that learning about science and engineering can be fun and rewarding. In past years, many of the young bridge builders have watched their bridges fail and then have come back the next year with a new and improved model.

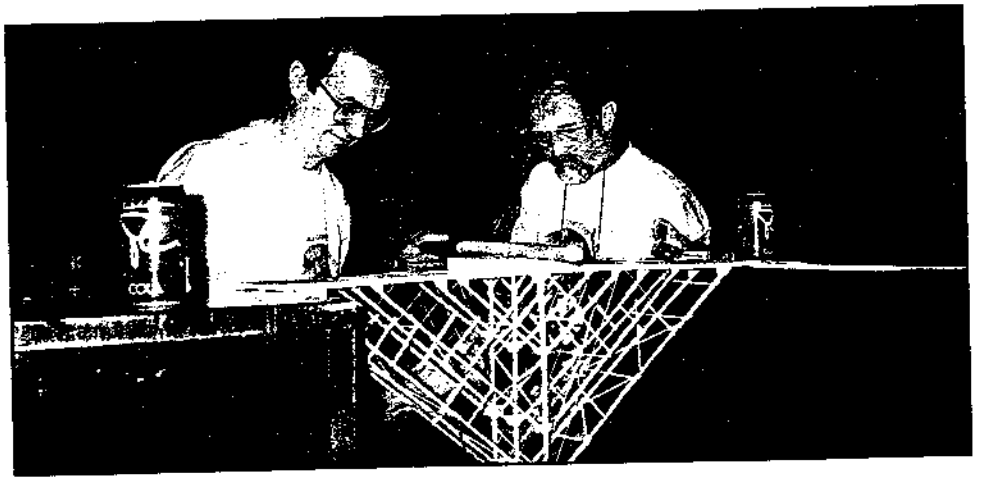
The level of participation rose again this year when a total of 226 bridges were entered. The competition is sponsored by local contractors, consultants, and the territorial government, as well as First Nation and franchises. The audience turnout on the testing day in Whitehorse was approximately 500 again this year. There was wonderful interaction between the two masters of ceremonies and the audience. The M.C.s mingled in the crowd, asked science-based questions over the microphones, and rewarded correct answers with prizes. There was also live coverage by CKRW Radio.

The testers loaded each bridge the same way, with an increasingly weighted bucket suspended from the center of the span. The bridges were tested to destruction or to a deflection limit, whichever occurred first. Each bridge was given a strength rating which was calculated by dividing the final load at failure by the weight of the bridge squared. The weight of the bridge was squared to teach the participants the importance of an efficient bridge. One of the Grade 6 bridges held 352.6 kg (777 lbs), which was roughly six times more than the average bridge weight of 1028.8 g (2.268 lbs). It came in 37th out of 83 bridges in the Grade 4 to 6 group. Prizes, plaques, and trophies were awarded for each category at the end of the testing.

The competition could not take place without the help of the many volunteers who donate their time and expertise. The bridge building competition actually begins in the classrooms months before the testing day. Each year the Innovators in the Schools program invites engineers from various fields to do school presentations on basic civil engineering principles such as tension and compression, and give advice on building the wooden stir stick bridges. Innovators provides the stir sticks and rules to the teachers. The rules state the allowed dimensions and materials; the rest of the design is up to the imagination of the participants. They have entered truss, Bailey, arch, beam, and suspension bridges. The engineers and other volunteers also help with the registration and testing of the completed bridges. This year, there were 38 volunteers involved on the actual testing day.

Niels Jacobsen and Gord DeBruyn testing one of the bridges for strength.

The fact that interest in the competition has been increasing each year is a tribute to the hard work of the organizers, volunteers, teachers, and most of all, the competitors themselves. Without the builders there would be no bridges! •



One of the 226 bridges constructed for the competition.

Update on Drug and Alcohol Testing of Transportation Workers

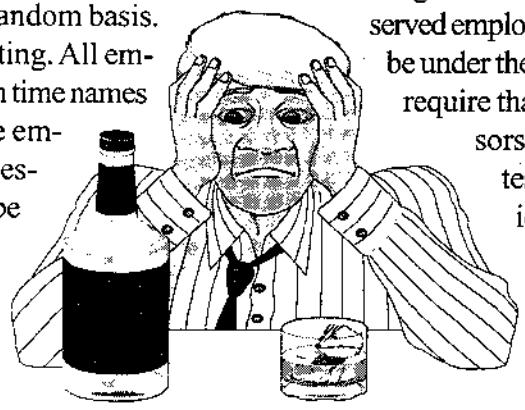
by Ernie Mueller, T2 Advisory Board Member, Public Works Director, Juneau City and Borough

In 1994, agencies of the U.S. Department of Transportation (USDOT) enacted new regulations on drug and alcohol testing of certain transportation workers. This article will cover the requirements of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Now is the time to review your policy on employee drug testing, take a look at the results of the first year or two of testing, and make changes if needed.

Larger employers, those with 50 or more covered employees, were required to begin testing January 1, 1995. Employers with fewer than 50 covered employees were required to begin testing January 1, 1996. The following is required:

Pre-employment testing. New employees must be tested before they can be put to work in jobs subject to the drug and alcohol testing. A 1995 change in the rules eliminated the requirement for pre-employment alcohol testing. Your policy must include the consequences for a positive pre-employment drug test.

Random testing. Employees covered by the rules must be tested on an unannounced, random basis. Employees are selected by lot for testing. All employees must be eligible for testing each time names are selected. This may mean that one employee is tested several times in succession, while others may seem never to be tested.



Employers are required to test at certain rates, which may change from year to year. The current rate of random alcohol testing is 25% and drug testing is 50% of the average number of eligible employees. The rate for testing may be lowered in calendar year 1999 for alcohol and in 1998 for drugs.

Employers need to review their random alcohol and drug testing program to assure that it is conforming with the regulations and to see that it is working for them. A major goal of random testing is to deter the use of drugs and alcohol by transportation workers. The basis upon which USDOT will reduce the rate of random testing is the number of positive tests in previous years. If the rate of positive tests remains high, the test rate will remain high.

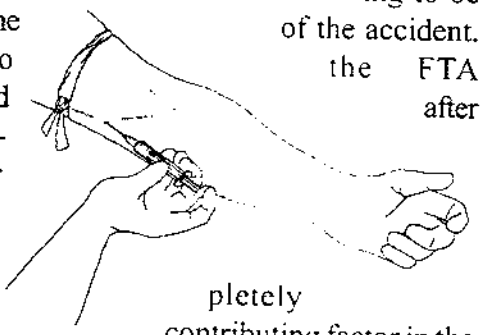
Although there is no fixed number of test times per year, all employers with seven or more covered employees must test at least quarterly, and those with six or fewer can test annually. Employees must not be made aware of the test periods in advance, or that the testing for the year is over.

Your policy must include the consequences for an employee who has a positive result. Many employers dismiss employees who are positive for alcohol and drugs. Others may be willing to give these employees a second chance. If employees are given a second chance, the rules specify that the employee must be evaluated by a substance abuse professional, undergo any treatment the substance abuse professional recommends, and test negative before returning to covered work. For employees who test positive for alcohol, there is a mandatory 24 hour period during which they cannot perform covered work.

Reasonable suspicion testing. Supervisors who have good faith reason to believe, based on observed employee behavior, that the employee may be under the influence of alcohol or drugs, may require that the employee be tested. Supervisors who require reasonable suspicion testing must be trained in the behavioral signs associated with alcohol and drug use. Observations by a supervisor must be confirmed by a second qualified supervisor, if practical.

Your policy must include the disposition of the employee after the test is taken and before the results have been received. You will know the alcohol test results immediately after the test, but drug results may take a week. You should be prepared to suspend the employee from transportation-related work until you receive the results of the test. Your policy must also include the consequences of a positive test based on reasonable suspicion.

Post-accident testing. All agencies require a test of surviving drivers when an accident involves a fatality. Drivers subject to the FHWA rules will be required to submit to testing when the driver is issued a citation for a non-fatal accident that involved: 1) a person receiving medical treatment away from the scene; or 2) a vehicle having to be towed from the scene of the accident. Employees subject to the FTA rules are to be tested after every accident, unless the employer determines the employee's performance can be completely discounted as a contributing factor in the accident. Other transit employees whose performance could have contributed to the accident must also be tested. The FTA rules were changed in 1995, so be sure to check your policy to see that it is in accordance with these rules.



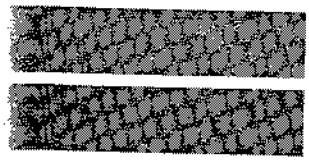
Your policy needs to outline what action will be taken in the event of an accident. You may need to make arrangements to have test samples taken at all hours and on holidays, and for supervisors to attend at the scene of an accident to make decisions regarding testing. You will also need to make decisions about the disposition of the employee during the period before the test results come in. Some employers may wish to suspend the employee from transportation-related duties until the results are available, considering the liability involved. Others may wish to suspend the employee with pay, or allow the employee to continue performing usual duties until the results are available.

Although the employer is not required to retain employees who test positive, if they do, the employee must undergo a return-to-duty test before transportation-related work is resumed. This test must be negative. Those permitted to return to work and perform transportation-related functions are also to be subject to periodic, unannounced follow up tests. The tests are to be performed at the frequency determined by the substance abuse professional who has evaluated the employee. At least six tests are to be performed the first year the employee has returned to work. Follow up tests are to be performed for the five-year period following. Follow up tests are in addition to routine random tests. They are very important both to deter further alcohol and drug use by employees who previously tested positive, and to screen out those who continue to use. Although an employer could continue to employ persons who have failed a drug or an alcohol test more than once, the employer is facing a very high liability if the employee is ever in an accident and tests positive.

The FHWA regulations do not require that employees be trained in alcohol and drugs. The employer must provide all employees with comprehensive information concerning the effects of alcohol and drugs, the requirements of the regulations, the employer's policy, and any resources in the community that may be available for help with alcohol and drug problems, typically in written form, and the employee must sign a receipt for the materials. Supervisors must receive at least one hour of training on both alcohol misuse and drug use. The FTA does require that all employees receive at least one hour of training on alcohol and drugs. Your policy must describe your training program. Most employers will want to train all of their employees to reinforce the employer's commitment to a safe and healthy workforce, and to be sure that all employees understand the policy and rules on drug testing.

Most medical review offices are contractors, and many employers will contract out the collection work, or join with other employers in a consortium to handle all testing requirements. Review the work of all of these contractors. Be sure they are using the proper procedures at the sample collection site; these procedures are critical to the integrity of the collection and testing process. Be sure that the laboratory and the medical review officer contact you immediately when the results of a test are available. As samples are often shipped from remote locations in Alaska to laboratories in other states, it can take days for samples to arrive at the laboratory. Be sure that the laboratory can fax the results to the medical review officer so the medical review officer can contact the you.

Employers who perform transportation services are now required to insure that workers are not under the influence of alcohol, or misuse drugs on the job. We must give a strong message to our employees that alcohol and drugs are not acceptable in the transportation business. Our employees must hear from us that they will suffer severe consequences if they are found to test positive for alcohol and drugs. Only then will accidents, injuries, fatalities, and property damage caused by drivers impaired by these substances, be reduced. •



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SHRP Evaluation Web Site

The Washington Department of Transportation has created a locally run Web site that corresponds to the nationally run SHRP Clearinghouse. The site is the SHRP Evaluation and Implementation Database. Mark Hambrick, the technology implementation coordinator at WSDOT, initiated the site because he realized it was an easy and effective way to get information about SHRP products that the state has tested and evaluated, out to his constituents in a timely and cost-effective manner.

The site contains evaluations of SHRP products; directories of contacts; discussion groups; searchable listing of SHRP publications and periodical articles; and information on SPS and GPS pavement performance sites. The primary advantage to the Web site is that it encourages the exchange of information and products worldwide. Mark has worked with other transportation officials from several local, state, and federal agencies, as well as Canada, Australia, and France, as a result.

The site includes eight discussion groups, including one for general questions relating to SHRP, and seven for specific subject areas. Mark is looking into the possibility of adding two more discussion groups in the future. The site includes a LIST-SERV system in order to make it more accessible to any interested individuals, such as local organizations or students, who would benefit from the knowledge.

Mark would like to see the WSDOT site merged with the SHRP Clearinghouse, as well as other similar sites, so efforts to obtain and distribute the evaluation information is not duplicated.

Questions concerning the Web site may be directed to Mark at: mhambric@wsdot.wa.gov.

SHRP Evaluation and Implementation Database
http://www.wsdot.wa.gov/fossc/ota/SHRP

More Transportation Web Sites

Thanks to the LTAP Clearinghouse for the following list of transportation Web sites.

Advocates for Highway and Auto Safety
http://www.saferoads.org
Advocates for Highway and Auto Safety is an alliance of consumer, health and safety groups, and insurance companies working together to make America's roads safer. Includes press releases, policy statements, and fact sheets.

American Association of State and Highway Transportation Officials Metrication Clearinghouse
http://tti.tamu.edu/metric/index.html
The AASHTO Metrication Clearinghouse facilitates the adoption of the metric system by highway agencies. Includes clearinghouse newsletter, a database of metric publications, and a summary of metric standards adopted by each state.

American Council for Energy and Efficient Economy
http://aceee.org/
A key component of the Council's transportation program is to reduce travel demand and encourage more efficient modes of travel. The site includes publications, press releases, legislative updates, and conference information.

California Partners for Advanced Transit and Highways (PATH)
http://www-path.eecs.berkeley.edu
The California PATH is a joint venture of the University of California, the California Department of Transportation, and private industry to develop more efficient transit and highway systems. Includes publications list, newsletters, and seminar and meeting information.

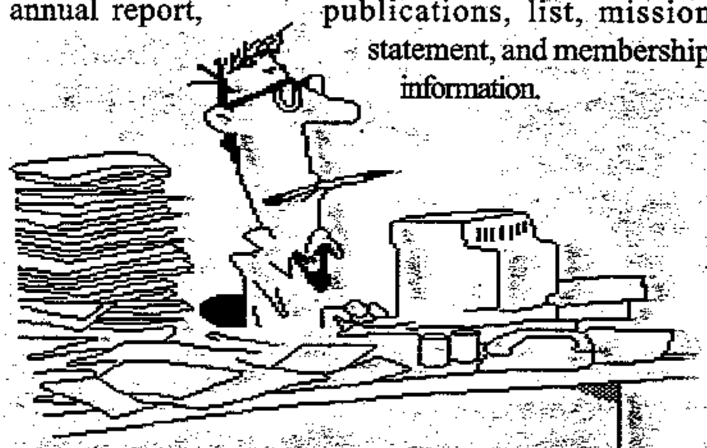
ITS America
http:/ www.itsa.org
ITS America promotes Intelligent Transportation Systems, which make use of technology to improve the movement of people and goods. Includes a calendar of events.

Institute of Transportation Engineers
http://www.ite.org
The Institute of Transportation Engineers is an international educational and scientific association of transportation and traffic engineers and other professionals who are responsible for meeting mobility and safety needs. Includes ITE calendar, request for proposals, publications list, and information on meetings and conferences.

International Road Federation
http://www.irfnet.org
The IRF is a nonprofit organization whose purpose is to encourage better road and transportation systems worldwide and to assist in the application of technology and management practices that will produce maximum economic and social return from national road investments. Includes meeting and program information, publications list, newsletters, and member list.

National Safety Council
http://www.nsc.org
The nonprofit National Safety Council offers products and services aimed at reducing some of the main causes of death and injury in the U.S. and the world. Includes calendar of events, publications list, and membership information.

Public Technology, Inc.
http://pti.nw.dc.us
Public Technology, Inc. is a nonprofit organization, which creates and develops technology innovations in five main technical program areas: telecommunications and information, energy, environment, public safety and transportation. PTI is sponsored by the National League of Cities, the National Association of Counties, and the International City/County Management Association. Includes annual report, publications, list, mission statement, and membership information.



Surface Transportation Policy Project (STPP)
http://www.transact.org/stpp.htm
The goal of the Surface Transportation Policy Project is to ensure that transportation policy and investments help conserve energy, protect environmental and aesthetic quality, strengthen the economy, promote social equity, and make communities more livable. Includes publications list.

The following transportation Web sites are operated by the federal government.

U.S. Department of Transportation
http://www.dot.gov/

Bureau of Transportation Statistics
http://web.fie.com/htdoc/fed/dot/bts/any/menu/any/btsindex.htm

Federal Highway Administration
http://www.fhwa.dot.gov/

Office of Technology Applications
http://www.ota.fhwa.dot.gov/

Federal Transit Administration
http://www.fta.dot.gov/

National Highway Traffic Safety Administration
http:www.nhtsa.dot.gov/

U.S. House Committee on Transportation and Infrastructure
http://www.house.gov/transportation

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Come Explore Our Web Site
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Framework for Success in San Diego

County finds QC/QA can reduce chip seal stresses

Part I of II, by Lita Davis

In order to maintain roadways with limited funds, San Diego County in California has taken an active role in developing a preventative maintenance program. Because of the number of roadways that qualify for preventative maintenance, the county has found chip sealing to be the most effective method to prevent premature aging of roadways.

The county's public works department is responsible for maintaining 1,870 miles (3,000 kilometers) of roadway, which are designated as either non-circulating element roads or circulation element roads. Non-circulating element roads consist of residential collectors, cul-de-sacs, or loop roads. Circulation element roads are those designated as arterial or major roads that carry traffic between major trip generators in unincorporated communities. Average traffic volume on a circulation element road can reach 30,000 vehicles daily.

San Diego county's roadways are evaluated about every three years with the county materials lab road rating deflection survey, which evaluates the structural integrity of the roadway. Based on field tests, the type and thickness of the maintenance work needed is determined. In order to qualify for preventative maintenance, the roadway must have a structural section that needs no repair. A visual inspection is also performed to determine if any minor surface work is necessary.

Chip seals are used to seal the roadway surface and prevent the penetration of water beneath the asphalt concrete surface, which is known to cause potholes and further deterioration of the roadway. The aggregate used in a chip seal also provides improved skid resistance and an all-weather surface.

San Diego county limits the size of its annual chip seal contract to approximately 100 to 125 miles (160 to 200 kilometers) of roadway. It is necessary to limit the contract to insure the chip seal work can be accomplished during July, August, and September, the optimum summer months. The county's annual chip seal contract is the largest in California and can range from $1.75 million to $2.25 million a year for a private contractor to furnish and place the chip seal.

Preventing windshield claims

In order for a private contractor to complete a multi-million dollar chip seal contract, quality control and quality assurance (QC/QA) are necessary to avoid delays, insure completion of the contract within the period of optimum weather and provide the desired end product with the least amount of windshield claims and repair work.

Depending on the size of the aggregate specified in the chip seal contract, windshield claims range from seven to 30 per annual contract. Considered an extremely low volume of windshield claims, this accomplishment is attributed to the QC/QA measures taken, including traffic control instituted during construction.

A successful chip seal application consists of several phases, including material selection, material testing, roadway evaluation and preparation, equipment, traffic control, placement, finishing and post sweeping.

The most important factor to a successful chip seal is the material. Poor quality emulsion or aggregate will prevent the contractor from providing a quality chip seal despite the efforts taken to provide quality traffic control, placement, finishing and post sweeping. So how does an agency help insure quality materials are used on its chip seal project?

San Diego county's contract provides specs the materials must meet for use on the project. Ultimately, however, it is the responsibility of the contractor to ensure the materials are fit for the intended purpose. The QC/QA specs are included to provide pre-qualification testing of the materials the contractor proposes to use. Once the contractor has demonstrated compliance with the material requirements, contract work begins when suitable weather allows.

Sampling and testing of materials

San Diego county's materials laboratory has the capability to perform the necessary testing, but due to the number of public works construction contracts going on at any given time, the labor is not always available. Therefore, in order to have the necessary testing performed in a timely manner, the county requires the contractor to have a private testing lab perform the pre-qualification testing of materials.

The contract provides requirements the independent testing lab must meet in order to be considered for the

project. For example, the testing laboratory must be independent of the contractor's work force, including the contractor's subcontractors and suppliers.

The test results furnished by the approved lab are used for acceptance of the materials and to determine the materials' compliance, or noncompliance, with the contract specs. The county's materials lab also performs sporadic testing of split material samples to insure the accuracy of the private testing lab's results.

Field sampling and testing of materials furnished to the job site

San Diego County's resident engineer is responsible for daily sampling of emulsion and aggregate materials furnished to the job site. Representative samples of the emulsion are taken for every 10,000 gallons (38,000 liters) delivered to the job site on any given day. When sample valves are not preset on a distributor truck, emulsion samples are taken from the distributor truck's spray when the truck is at mid-load. It is important to take the sample from an active portion of the spray bar that has been applying emulsion on the job site. This measure is taken to insure the sample is not contaminated with any other materials that may be in the spray bar.

The county will extract one gallon (four liters) at one time for each representative sample of emulsion delivered to the job site. Two quarts (liters) are sent to the private testing lab, one quart (0.95 liters) is sent to the county materials laboratory, and one quart (0.95 liters) is filled at the same time to be considered "split samples" and for comparison of test results.

Representative samples of aggregate are taken daily from the job site. The county will fill two plastic bags with approximately 15 pounds (seven kilograms) of aggregate for each representative sample of aggregate. One bag is sent to the county materials lab for testing and the other is returned to the contractor. Samples of the aggregate are taken from the opening of the gates on the chip spreader box. Both bags are filled at the same time to be considered "split samples" and for comparison of test results.

Visual inspection of materials

Even though materials are tested for compliance prior to use, it is not practical to pre-qualify each load of emulsion delivered. The county reserves the right to sample and test the emulsion to insure compliance with the contract specs.

The test results for the collected field samples are not received until the material has already been placed on the job site. Therefore, the county's and contractor's representatives must monitor the identifiable characteristics of emulsions and aggregate.

The ideal aggregate is crushed and cubical shaped. Elongated slivers of aggregate are sometimes developed in the crushing process and it is difficult to obtain proper embedment with these slivers. Because of the application rate determined for proper embedment of the cubical aggregate, the elongated slivers tend to get buried in the emulsion and may effect skid resistance.

If the aggregate has not been properly screened, washed, drained, and delivered damp at the time of application, it creates conditions that prevent the proper bonding of the emulsion to the aggregate.

Embedment can be affected. Over embedment of aggregate into the emulsion can cause the emulsion to bleed through the aggregate. Under embedment can cause the rock to ravel and expose emulsion residue.

Under washing aggregate causes the presence of fines that prevent the aggregate from making adequate contact with the emulsion. This can also cause raveling of the larger aggregate.

Excessively wet aggregate extends the normal hydration of water from the emulsion, which inhibits the bonding of the emulsion to the aggregate and the roadway surface. This can also diminish the film thickness of the emulsion residue on the aggregate which can cause premature chip loss and can delay post-sweeping operations of excess aggregate from the chip seal surface.

Dry aggregate prevents the emulsion from migrating up around the sides of the aggregate and prevents suction between the aggregate and emulsion. There can also be a thin layer of dust present in the dry aggregate, which will absorb the water from the emulsion and prevent proper adhesion of the aggregate to the emulsion.

Aggregate test results will demonstrate the gradation and the cleanness value of the sample. Cleanness value is a California test method used to determine the amount of fines present in the aggregate sample. However, preparation of aggregate samples for testing will not indicate if the aggregate was too wet or too dry at the time of application.

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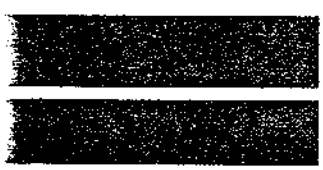
Part two of this article will be printed in the Summer 1997 edition of the newsletter.•



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A Reality Check for Superpave Binders

Here's the truth, from the supplier's perspective, Part I of II

by April Swanson

There are three major parts of Superpave: the asphalt binder, mixture design and analysis, and computer software. The asphalt binder is being implemented a little before the mixtures. The performance grade (PG) binder is a very good tool for improving the quality of our roads and even though it isn't 100 percent complete right now, there is a lot to be gained by starting the implementation early.

When you're in a period of change, it's always easier to make the adjustments at the beginning. One reason for early implementation is suppliers are finding, as the industry gets into Superpave, there are shortcomings. It's easier to take care of these shortcomings ahead of time rather than after the fact.

The Superpave asphalt test system is an extremely sensible one. The lab tests used to grade the asphalt correspond closely to actual conditions of the asphalt in the road. Temperature extremes of the asphalt on the road are matched with those in the lab; so is the age of the asphalt. The asphalt is tested in a fresh condition in a slightly aged state which corresponds to what comes out of the plant, and then in a more severely aged condition that corresponds to what it might be like in a road after several years of service.

Superpave binder viscosity tests are carried out at a variety of temperatures. A test is performed at almost every six degree increment across the spectrum.

The temperature of the penetration test is generally set at 25 degrees Celsius. In today's testing arena, no good method of characterizing the low temperature of asphalt exists. Nothing has worked well. On the other hand, in Superpave, the asphalt is characterized well at low temperature, and the program offers a good tool to predict the low temperature thermal cracking of asphalt. This is where Superpave PG grades offer something that didn't exist before.

What's going to change under Superpave?

There will definitely be new lab equipment and test methods. New grades of asphalt will be used, and a lot of old grades of asphalt will continue to be used, but under new names. The value of crude oils will probably change, and this may affect the price of certain grades of asphalt. Plus, the manufacturing process of certain grades may change, especially the premium PG grades.

Many people want to know if certain manufacturer's asphalts will meet PG grades. Of course they will. Every asphalt has a PG grade, but certain PG grades will be easy to produce, others will be harder. These asphalts can be produced under current production methods, but there isn't a very big manufacturing window, so they will be more difficult to manufacture.

Some kinds of asphalts are considered beyond the capability of today's production methods, but with some refining changes maybe they can be produced. Maybe they'll have to be modified. Another category of asphalts is even harder to make and require more severe modifications. Then there are the grades which are extremely difficult to make. They can only be made with a heroic effort on the manufacturer's part. In some cases, the attempt might not be successful, they're so difficult to make.

Each refiner will have his own production arrangement of easy and hard asphalts. Some people might have heard of the Rule of 90, which says if there is only 90 degrees difference between a high temperature grade and a low temperature grade, that binder can be made by conventional processes. The Rule of 90 really isn't correct because, for example, on high viscosity asphalt like an AC20, there is more margin between the high and low temperature grades. There is actually a 91 degree range of a regular refined asphalt.

With lower viscosity grades such as AC2.5, the natural range is smaller, such as 83 degrees. So, if a state picks asphalt grades based on the Rule of 90, it will have success with some grades, but for other grades the state may find nobody can supply the asphalt without modifications. The Rule of 90 is a commonly held misconception.

To what do PG grades correspond?

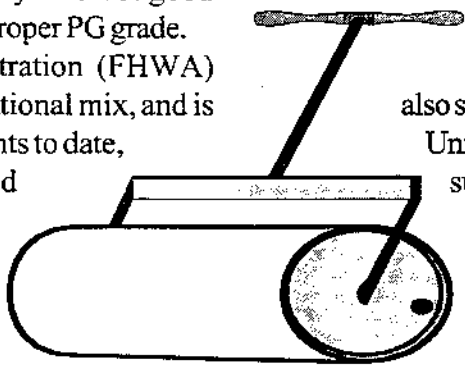
Each supplier has its own list of grades that are easy and hard to make. Certain PG grades correspond with current AC grades and some are either impossible or difficult to make. In fact, those considered difficult for one supplier may be easy for another. There isn't a one-to-one correspondence between a viscosity grade and a PG grade.

The reason for this is all asphalts have the same viscosity

at 60 degrees Celsius. They're exactly the same AC grade, but their properties at -20 degrees Celsius are different, and that amount of difference affects their performance. Because of this, one of the most difficult tasks for states right now is deciding which of those PG grades to require in paving.

There are other things the state must consider: climate, traffic severity, and reliability. Reliability is the concept that a higher initial cost can be traded off for a longer payment life. Because of these factors, a state or agency must use good engineering judgement in selecting the proper PG grade.

The Federal Highway Administration (FHWA) recommends if a state is using a conventional mix, and is happy with the performance of pavements to date, the agency should test its current liquid asphalt using the Superpave binder test, and call for a product similar to what it is using today. The Superpave weather database typically calls for a softer asphalt than is used today. If a mix doesn't have the increased internal friction that Superpave mixes have, pavement failure may result. The last thing any one of us wants to do is implement something good in a misguided manner, and in fact hurt the quality of our roads.



FHWA's document also gives guidelines, in the event a state or agency is not happy with the quality of its pavements, on how the agency might implement some of the more premium Superpave grades.

Critical issues in choosing the grades

As Superpave binders are implemented, it's important the state understand the availability of PG binders. The last thing the industry wants to do is have a bid letting and find out there are no supplies available. The supplier must understand from the state what volume of the different PG grades is going to be required. In some circumstances, the manufacturing process will have to be changed, and suppliers must know if there is enough incentive to spend the money necessary to change the manufacturing process.

It's also important that the state understand the cost of the PG grades that it requests. Large changes in asphalt supplies take time. It would be difficult to make a substantial change in asphalt supplies in a year. These changes can begin to be implemented now, but full implementation will take a little time. Plus, some semi-premium and premium grades, which have very good application in Superpave binder use, will be more expensive than conventional asphalts.

Superpave binder certification

The first thing some asphalt suppliers did after hearing Superpave was coming was complain, thinking it was going to be horrible. But then, as time progressed, suppliers realized this is an excellent opportunity to make a system work the way they would like it to. Suppliers just need to sit down and get the job done. That's what they did, largely through the Asphalt Institute at the beginning.

What the group sought to do was get asphalt testing to an acceptable level, tested enough but not too much. Suppliers also sough to establish uniform specs across the United States which will help the states and the suppliers. They knew by getting together and working on it, they could speed the transition to Superpave. The transition is not only an opportunity, but also a challenge.

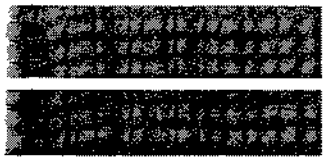
Another major challenge is the state and regional differences in asphalt specs. Different areas have different concerns, so asphalt suppliers had to accommodate the concerns of many, and one way to handle this was to work through the User-Producer groups.

There also are a lot of differences among suppliers. Some suppliers may have 10,000 gallon (38,000 liter) tanks of asphalt on hand. Others have 10 million gallon (38 million liter) tanks. Trying to get them all to agree on one certification program was a challenge, but the group did it. And, what suppliers came up with was something called the Approved Supplier Certification (ASC).

Among the main features is one which states asphalt can be manufactures without pretesting every batch. If everything had to be pretested, supply would be held up, and they wouldn't be able to function as a whole. In the ASC program, the supplier establishes a history of on-spec manufacture of PG binders. The supplier develops a quality control (QC) plan tailored to its own circumstances and follows the plan. The agency reviews the plan, decides if it is acceptable, and makes necessary changes. This QC plan is custom fit to every agency-supplier relationship.

Printed with permission from "The Asphalt Contractor," February 1997.

Part two of this article will be printed in the Summer 1997 edition of the newsletter. •



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AISES CONFERENCE

The American Indian Science and Engineering Society student chapter at University of Alaska Fairbanks (UAF) hosted the Region I Conference March 6-8, 1997, which included a career fair on March 6. Participants came from all over Alaska, as well as the Pacific Northwest. Based on information provided by participants and presenters, approximately 53 tribes were represented at the conference.

Above: Sue McHenry, Advisor/Counselor Rural Student Services, UAF, describes the annual ice bridge competition of the student chapter of the ASCE, and the results of that effort.
Right: Ross Schaeffer discussing subsistence living.
Below: Event Organizers: Mark Blair, Kim Ivie, Jason Gavin, Sasha Atuk, Sue McHenry, and Jeff Davis.

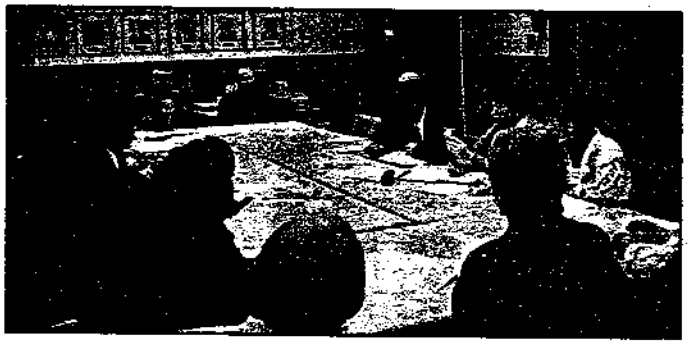
University of Alaska Chancellor JoAnn Wadlow opened the conference, followed by a welcome from JoAnn Ducharme, Director of Rural Student Services. Richard Glenn, a founding member of UAF AISES, provided the keynote address and current AISES President Mark Blair gave an introduction and an overview of the Fairbanks Chapter.

Participants heard sessions on how to make yourself more employable, sea ice behaviour, permafrost, the Alaska Rural Systemic Initiative, Alaska Native Hire, the UAF student rocket project, traditional healing, and subsistence living in Northwest Alaska. They heard from a panel of Native Engineers, a panel of health pracitioners, a wildlife panel, and from elders who shared their perspectives. •

RUSSIAN VISIT

In mid-March, a team of Russian transportation government officials interested in setting up their own Technology Transfer (T2) Center visited the Alaska T2 Center for a day-long briefing on Center operation. The Russian team was accompanied by an interpreter and a member of Federal Highway Administration's (FHWA) International Program Branch from Washington D,C.. Participants in the tour were: Mr. Guennadii Pouzikov, Deputy Director General, FHWA, Moscow; Mr. Viatcheslav Kotchemassov, Regional Highway Construction Directorate, Human Resource Development, Khabarovsk; Ms. Lioubov Orlova, Audit and Accounting Division Chief, FHWA, Moscow; Ms. Valentina Karamycheva, T³ Center Director, "Roads of Russia" Directorate, Moscow; Mr. Oleg Matveyenko, Deputy Chief, Audit and Accounting Division, FHWA, Moscow; Ms. Anna Grigorovskaia (Interpreter), Office Manager, U.S. FHWA Moscow Mission; and Mr. Blas Puzon (Tour Escourt), Highway Engineer, FHWA, Washington, D.C..

Russia wants to implement their T2 Center following the successful pattern already set by the Local Technical Assistance Program (LTAP) in the United States. Alaska was the Russians' next-to-the-last stop in a five-state visit. They visited Maryland, Florida, Alaska, Wyoming, and Minnesota, gaining a broad sense of the uniqueness and wide vareity of T2 Center management. Because each T2 Center gears its program to the audience it serves, no two Centers are exactly alike. Some Centers provide one-half day seminars taken directly to county public works locations,



Above: Russian officials meeting with Individuals from the Alaska T2 Center.

Left: Russian officials touring CRREL's permafrost tunnel.

while other Centers provide one to three day classes; some Centers have a four-page newsletter, while others have a twenty-page newsletter. Some have small libraries, while others have huge libraries.

The Russians asked questions about funding, both short and long-term; Center staffing; how we decide what topics go in a newletter, how the newsletter is produced (cut-and-paste, or on computer), and by what means it is printed; how the Center got people on its mailing list when it first opened; how a Center decides what training to do and how we find instructors; how to choose advisory board members; whether Center staff was able to mandate that new technology be implemented; and how many people the Center serves, as well as whether they were all government.

Dave McCaleb, Northern Region Pre-Construction Chief, provided an overview of how DOT&PF is organized. He noted that, much like Russia, Alaska has a vast geographic area with several different climatic zones to deal with, with the result that construction and maintenance techniques used in a maritime climate did not work in a Northern cold desert. Items of interest to the Russians included what snow-removal and construction equipment is used, and how contracting works in Alaska. Don Lowell, Special Assistant to the Commissioner, provided an overview of recent and future engineering outreach activities to Russia.

University of Alaska Fairbanks engineering professors provided short presentations on topics that Alaska has in common with Russia. Dr. Larry Bennett explained dust control research; Dr. Doug Goering discussed permafrost and a new technique for keeping permafrost frozen, which is being used in a 200' test section of the Parks-Ridge Interchange project in Fairbanks, and student Ms. Danielle Kleinhaus, Research Assistant, talked about stabilizing unstable soils with geofabrics. Dr. Lufti Raad also explained how the University's Transportation Research Center is set up, and how research results and new technology are implemented.

Following those discussions, Billy Connor, Alaska DOT&PF Northern Region Construction and Dr. Scott Huang conducted a short tour of CRREL's permafrost tunnel, showing what ice lenses and permafrost look like from underground. The last stop enroute to the hotel was a quick visit to the Alaska Ice Sculptures small block competition, where a team from Russia had won first place in the abstract category. •

SHRP SHOWCASES

Alaska Division Federal Highway Administration, Statewide Research, and the Alaska T2 Center, jointly sponsored a series of SHRP Showcases in Alaska. Mike Mamlouk, civil engineering professor, Arizona State University; John Hopkins, Idaho T2 Center Director; and Dale Keep, Maintenance Methods Specialist, Washington State DOT, presented Strategic Highway Research Program technology in Juneau, Anchorage, and Fairbanks. The two-day sessions focused on preventive maintenance of pavements, innovative materials for pavement maintenance, and snow and ice control. •

George Levasseur, T2 Board Member, SouthCentral District Manager, speaking at a SHRP Showcase.

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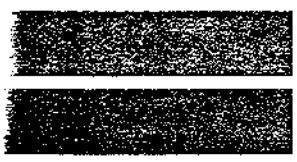
AGENCY	METRIC CONVERSION DATE FOR NEW CONSTRUCTION PROJECTS
General Services Administration	*January 1994* GSA's Public Buildings Service, the "federal landlord," builds numerous federal agencies. Over $4 billion in metric projects are currently in design or under consrruction and several major metric projects have been completed.
Federal Highway Administration	*October 1996/2000* Last year, Congress pushed back the FHWA's 1996 deadline to 2000 but, of the 52 "states" (including the District of Columbia and Puerto Rico), 44 have adhered to the 1996 date, 4 are delaying for 1 year, and 4 (Hawaii, the Dakotas, and Rhode Island) are delaying until 2000. Metric projects totaling almost $3 billion are now under construction. In 1997, about $10 billion in metric projects will be awarded, increasing to about $15 billion in 1998 and reaching the $20+ billion FHWA total by 2000.
Army Corps of Engineers	*October 1996* $400 million in metric military projects are under construction or awaiting award and $730 million are in design. $550 million in metric civil works projects are under construction. Overseas, over $1 billion in metric projects are planned or are under construction.
Naval Facilities Engineering Command	*October 1996* The Navy's FY 1997 construction program is metric and totals about $400 million.
Air Force	*October 1996* The Air Force's Fy 1997 construction program, built largely by the Army and Navy, is metric.
Coast Guard	*In phases, beginning January 1996* Approximately $11 million in metric projects are underconstruction. All work ($50-100 million annually) will be built in metric after 2000.
State Department	State has virtually always built in metric.
National Aeronautics and Space Administration	*October 1995* Each NASA field activity has designed and constructed at least one metric project to date. All future NASA projects will be built in metric.
Federal Bureau of Prisons	*Beginning October 1996* Four metric projects totaling $374 million are in the design stage, including federal detention centers in Houston and Honolulu and federal correctional centers in Victorville and Castle AFB, California.
Department of Veterans Affairs	*No date set at this time* Five metric projects are planned but only one has been funded to date. The recently occupied $70 million VA data center in Philadelphia, built by GSA, is the largest metric building constructed in the United States.
Smithsonian Institution	*January 1994* Virtually all work, including maintenance and repair, has been performed in metric for the past three years. The $30 million National Museum for the American Indian Cultural Resources Center was recently awarded under budget. Another $300 million in metric proects are inn the planning or design stages.

Department of Energy	*January 1994* for major projects Many DOE labs and sites have ongoing metric construction programs.
Environmental Protection Agency	No metric policy on construction grants. EPA provides water and sewer grants to states and municipalities but is not involved in their construction.
USDA Forest Service	*Beginning October 1996* The Forest Service's metrication schedule depends in large part on state highway metrician activities. Most projects are small and in remote locations and will be convertedto metric as it is practical to do so.
Department of Agriculture	*January 1995* Major DOA projects are built by GSA in metric units. A $40 million office facility in Beltsville, Maryland, is under construction and DOA's South Building will be renovated over 10 years for a total cost of approximately $160 million. Ten smaller projects are currently under construction or have been completed.
Indian Health Service	*January 1994* All projects are being designed and constructed in metric.
National Institute of Standards and Technology	*January 1994* All projects are being designed in metric. The $75 million Advanced Chemical Sciences Laboratory in Gaithersburg, Maryland, is under construction and will be completed in 1998. Five smaller projects have been completed.
U.S. Postal Service (USPS is not a federal agency)	*No date set at this time* But several metric projects are under way.
Administrative Office of the U.S. Courts	*January 1994* All new federal courthouses have been built in metric by GSA since 1994. The total value of these facilities is well over $1 billion.
Internal Revenue Service	*January 1994* All major IRS buildings are built in metric by GSA. Smaller projects are designed in-house in metric. Four major renovation projects in Cincinnati, Kansas City, Ogden, and Austin total $100 million and will be completed by the end of 1996. Designs are nearly complete for a $100 million computing center in Martinsburg, West Virginia, and a $30 million IRS complex in Beckley, West Virginia.
Naval Sea Systems Command (Ships and boats use many of the same construction components as buildings, particularly structural steel and mechanical and electrical equipment)	*No formal date* The metric design of the LPD 17 amphibious assault ship is complete. Two other ships, the SC 21 and the ADC (X0, are being designed in metric. NAVSEA's conversion is proceeding on a program-by-program basis.

Reprinted with permission from *Metric in Construction*, November- December 1996, National Institute of Building Sciences Construction Metrication Council. •



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DATE	EVENT	SPONSOR/CONTACT	LOCATION
July 9-11	National Management Conference & Expostition on Environmental Health & Safety in Fleet/Vehicle Maintenence & Refueling Operations	Environmental Resource Institute @ 800-783-6338	St. Charles, Illinois Pheasant Run Resort &. Convention Center
July 27-30	1997 National Local Technical Assistance Program (LTAP) Conference	Minnesota T2 Center @ (612) 625-5829	Duluth, Minnesota
July 20-22	National Pavement Management Workshop	George Jones, FHWA @ (202) 366-1337	New Orleans, Louisiana
August 10-14	8th International Conference on Asphalt Pavements	Conference Management @ (206) 543-5539	University of Washington Seattle, Washington
September 13-17	1997 International Public Works Congress & Exposition	American Public Works Association @ 800-288-8606	Minneapolis, Minnesota
October 20-24	NHI # 13212: Soils & Foundations Workshop	Jim Bennett, DOT&PF @ (907) 451-5322	Anchorage, Alaska
March 2-4, 1998	Alaska Transportation Week: Conference on NQI & University of Alaska Fairbanks Transportation Forum	Alasks T2 Center/ DOT&PF/FHWA/AGC/UAF Sharon McLeod-Everette, DOT&PF @ (907) 451-5323	Anchorage, Alaska Sheraton Hotel
April 1998	FHWA Demonstration Project No. 82- Mechanically Stabalized Earth Walls & Reinforced Soil Slopes	DOT&PF Sharon McLeod-Everette @ (907) 451-5323	Anchorage, Alaska Juneau, Alaska
May 23-27, 1999	Seventh International Conference on Low-Volume Roads	Transportation Research Board	Baton Rouge, Louisiana Louisiana State University

Meetings Around Alaska

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

Who's Who in Alaskan Transportation

Marie Messing

by Chris Janssen

Marie Messing works as the Area Road Engineer for the Bureau of Indian Affairs (BIA), in Juneau. She recently joined the T2 Advisory Board as a new member. Marie has lived off and on in Alaska for about three years since 1992. She spent a year and a half in Juneau, then two years in Billings, before finally coming to Juneau one and a half years ago. Marie has spent four years with BIA, investing time in both Billings and Juneau. She loves the rainy weather in Juneau. Marie said, "I love the rain. I could be happy never seeing the sun again."

Marie is originally from Milwaukee, Wisconsin, and her family is from the Minnesota Chippewa Tribe, Nett Lake Area. She has been married to Brian Messing, a meatcutter and student at the University of Alaska Southeast, for four years. Their household includes their three children: David Anspach, 21; Kiera Messing, 10; and Nathan Messing, 3; two goldfish (the only ones that have survived from a group of 6 they bought for $1) are also included in the family.

Marie attained her Bachelors of Science in Civil Engineering degree from the University of South Florida. She liked studying math in college, so she decided she could either be a teacher or an engineer. She wasn't sure about the idea of teaching, so engineering won out. While in college, a few of her engineering professors constantly gave her advice about personal experiences in both the field, and in life, which has stuck with Marie since then. She has learned to live by the idea that, "Everyone has strengths and weaknesses, the trick is to capitalize on the strengths, and develop the weaknesses."

Before joining BIA, Marie worked for five years with civil and environmental consulting firms. She worked for John Landon and Associates, as well as Housel and Associates, as a student intern to gain career experience. She also worked for the Minnesota Department of Transportation for four years as a pre-design engineer.

Her job takes her all around Alaska. Marie enjoys this aspect of her work, particularly the opportunity to visit with the people in the villages. Marie does not limit herself to meeting people on the job, though. She is an active member of her church, Bethel Assembly of God, and volunteers in the nursery from time to time. She also enjoys camping and channel watching from her home on the channel, in Juneau.

We are very glad to have Marie along for the ride!

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____ **Automated Design/Plotting Programming for Three-Sided and Closed Type Precast Culvert Structures**, OHIO/HWY-01/95. Columbus Engineering Consultants Inc., Ohio Department of Transportation, December 1994.

____ **Bestamning av styvhetsmodul hos asfaltbetong genom pressdragprovet**, VTI sartryck, Foredraf vid NVF-seminarium i Finland, April 1994. Nr 236. Vag-och transport-forskningsinstitutet, 1995, 24 pp.

____ **Durability Characteristics of Precast Concrete Box Culverts**, FHWA/OH-95/002, CTL Engineering, Inc., Ohio Department of Transportation. U.S. DOT/FHWA, November 11, 1994.

____ **Effects of Aggregate Blends on the Properties of Portland Cement Concrete Pavements**, FHWA/TX-94+1244-8, CTR 0-1244, Research Report 1244-8. Project 0-1244, Center for Transportation Research, The University of Texas at Austin, U.S. DOT/FHWA. August 1994, 85 pp.

____ **Effects of Work Zone Detours on Rural Highway Traffic Operations**, TX-95+987-2, CTR 7-987-2, Research Report 987-2, Project 7-987-2. Center for Transportation Research, The University of Texas at Austin, May 1993, 80 pp.

____ **Effective Placement of Detectors for Computerized Traffic Control Summary Report**, FHWA/TX-95/1292-9F, TTI: 0-1392, Research Report 1392-9F. Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, December 1994, 46 pp.

____ **Evaluation of Bonds for Financing State Highway Expenditures in Texas: Preliminary Findings**, FHWA/TX-94/1362-1, TTI: 0-1362, Research Report 1362-1, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, November 1994, 58 pp.

____ **Evaluation of Urban Travel Survey Methodologies**, FHWA/TX-95/1235-10, TTI: 0-1235, Research Report 1235-10. Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, October 1994, 166pp.

____ **Examination of Policies and Programs Supporting Transit Use in Texas**, TX-95/1975-2F, TTI: 7-1975, Research Report 1975-2F. Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, November 1994, 92 pp.

____ **Handbook of Computer Models for Traffic Operations Analysis**, FHWA-TS-82-213, Diaz Secking & Associates Inc., U.S. DOT/FHWA, December 1982, 287 pp.

____ **Improving Transit Coordination in Texas**, TX-94/1974-1, TTI: 7-1974, Research Report 1974-1, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Transit Authority, November 1994 revised March 1995, 224 pp.

____ **Influence of Adjuvants on Roundup Effectiveness**, TX-94/902-10, TTI: 7-902, Research Report 902-10, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, November 1994, 46 pp.

____ **Integrating Transportation and Land Use Planning**, FHWA/TX-95/1235-15, TTI: 0-1235, Research Report 1235-15, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, August 1994, 112 pp

____ **Linking Goods Movement and Economic Development: A Case Study**, DOT-I-85-36, U.S. DOT, Economic Development Administration, U.S. Department of Commerce, December 1984, 108 pp.

____ **Optimizing Detector Placement for High Speed Isolated Signalized Intersections Using Vehicular Delay as the Criterion**, FHWA/TX-94/1392-3. TTI: 0-1392, Research Report 1392-3, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, October 1994, 106 pp.

____ **Proceedings of the Symposium on the Impact of Oil Resource Development on Northern Plant Communities**, Occasional Publications on Northern Life. No. 1, Institute of Arctic Biology, University of Alaska Fairbanks, March 1973, 95 pp.

____ **Roadside Safety Features 1991: Highway and Facility Design No. 1302**, Transportation Research Record, Transportation Research Board, National Research Council, Washington D.C., 1991, 55 pp.

____ **Samband mellan fält-och laboratoriemoduler**, VTI sartryck, Foredrag vid NVF-seminarium i Finland, April 1994, Nr 235, Väg-och transport-forskningsinstitutet, 1995, 12 pp.

____ **Stenmaterialets betydelse for funktionen hos asfaltbelaggning - svenska forhallanden**, VTI sartryck, Foredraf vid konferensen "Stein i vie" arrangered av Pukk - og frusleverandorenes landsforening's Servicekontor och Asfaltindustriens laboratorium februari 1995, Nr 238, Väg-och transport-forskningsinstitutet, 1995, 14 pp. and tables.

____ **Traffic Management in Response to Major Freeway Incidents, Volume II**, FHWA/TX-94/1345-2F, TTI: 0-1345, Research Report 1345-2F, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, August 1994, 192 pp.

____ **Traffic Signal Controller Quality Assurance: Final Report**, FHWA/OH-94/009, Ohio Automation, Ohio Department of Transportation, U.S. DOT/FHWA, April 1994, 177 pp.

____ **TRANSPLAN Corridor Analysis: Procedures Guide**, FHWA/TX-95/1235-16F, TTI: 0-1235, Research Report 1235-16, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, August 1994, 96 pp.

____ **The Use and Evaluation of Transportation Control Measures**, FHWA/TX-94-1279-6, TTI: 0-1279, Research Report 1279-6, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, Federal Highway Administration, September 1994, 206 pp.

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Department of Transportation and Public Facilities
2301 Peger Road M/S 2550
Fairbanks, AK 99709-5399
Fax: (907) 451-2313
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____ **Asphalt Overlays: The Four P's.** Minnesota Local Road Research Board, 15:28 minutes. This video provides government officials with necessary information to be considered when establishing budgets for pavement construction, maintenance, and rehabilitation. (With notes to presenter and video review.) #376

____ **Idea Store: VII**, Commonwealth Media Services, DOT, August 1987, 10:08 minutes. #373

____ **Keeping Soil on Construction Sites: Best Management Practices**, Ohio Department of Natural Resources, 1:20:00 minutes. #375

____ **Mock Trial: FHWA Region 8 Conference.** FHWA. 1991, 30:00 minutes. #377

____ **The Modified Thrie Beam Guardrails: Cable Guardrails,** Concrete Bridge Railings. #378

____ **The Morton Dura-Stripe System.** Morton Traffic Markings. This video covers highly durable, two component Dura-Stripe road marking material and equipment designed specifically to simplify its application. #379

____ **Motorgrader Preventative Maintenance.** New Mexico Highway and Transportation Training Agency, 12:00 minutes. #380

____ **No Nonsense CDL: Part One.** CDL Systems, Inc., 1989. This video covers introduction to the CDL program, inspections, inspection procedures, staying fit to drive, basic control, seeing and communicating, and managing speed and space. #381

____ **No Nonsense CDL: Part Two.** CDL Systems, Inc. 1989. This video covers special driving conditions, emergencies, introduction to hazardous materials, transporting cargo, tanker endorsements, air brake endorsements and air brake systems, inspection and use. #382

____ **No Nonsense CDL: Part Three.** CDL Systems, Inc. 1989. This video covers combination vehicle endorsements (the vehicle, air brakes combination vehicles, coupling, uncoupling, and inspection), doubles and triples endorsements, and hazardous materials endorsement (hazardous materials rules, HazMat paperwork). #383

____ **Nuclear Safety Procedures and Refresher Course.** Taped April 21, 1988. #384

____ **On the Road to Equality: Women in Highway Construction**, FHWA/DOT, 33:00 minutes. #385

____ **The PennDot Advantage.** Department of Transportation, Commonwealth of Pennsylvania, October 1992, 10:15 minutes. #386

____ **Perfect Publishing with WordPerfect.** Tape One and Two with a disk of Perfect Publishing 5.1. #387

____ **Project Documentation.** SNI International Resources Inc., NCHRP, 9:44 minutes. #388

____ **Puff Asphalt Maintenance Systems.** One Man Inc.. #389

____ **Quality Control of Concrete on Site: Part One**, Strategic Highway Research Program, June 1994, 14:00 minutes. #390

____ **Quality Control of Concrete on Site: Part Two**, Strategic Highway Research Program, June 1994, 17:00 minutes. #391

____ **Quality Control of Concrete on Site: Part Three**, Strategic Highway Research Program, June 1994, 18:00 minutes. #392

____ **Quality Control of Concrete on Site: Part Four**, Strategic Highway Research Program, June 1994, 18:00 minutes. #393

____ **Reduce Accident Rates By As Much As 90%**, Safety Shorts, 10:00 minutes. #394

____ **Rendez Vous Road - The Alcan**, Scribblers Inc., Project 1992, 1990, 14:00 minutes. #395

____ **Right Before Your Eyes**, American Traffic Safety Services Association, 9:30 minutes. #396

____ **Road Dust Control & New Pavement Alternative**, Road Oyl Video, Soil Stabilization Products, 10:00 minute. #397

____ **Roadshow**, Utah DOT, 15:00 minutes. #398

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

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

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Local Technical Assistance Program (LTAP)
Department of Transportation and Public Facilities
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Fairbanks, AK 99709-5399
Fax: (907) 451-2313
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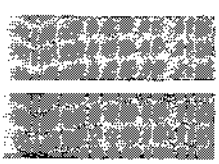


For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

Field Evaluation of the Long Term Corrosion Protection Characteristics of Calcium Nitrate in Prestressed Concrete Bridge Girders, FHWA/OH-96/010, *Eric P. Steinberg, Kenneth B. Edwards.* This report describes the Ohio Department of Transportation study to reduce corrosion of reinforcement in prestressed bridge girders by using a corrosion inhibitor, calcium nitrate or epoxy coated reinforcement.

Computational Mechanics Publications: Complete Book Catalogue 97. This publication indexes the following: Boundary Elements, Fluid Mechanics, Fracture Mechanics, Heat Transfer, Numerical Methods, Structures, Education, Mathematics, Materials, Biomedicine, Manufacturing, Artificial Intelligence, Software Books, High Performance Computing, Architecture and Graphic, Marine and Offshore Engineering, Water Resources and Hydraulics, Soil Dynamics and Earthquake Engineering, Environmental Engineering, Aerospace Engineering, Transport Engineering, Acoustics, and BEASY. This publication is also available on CD Rom, http://www.cmp.co.uk .

Chip Seals for High-Traffic Volume Asphalt Concrete Pavements, NCHRP 14-8A, *Scott Shuler.* This report addresses concerns and makes recommendations for the use of chip seals. Documentation is included from the research results for this project.

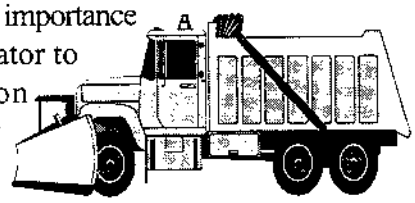
Crash Testing Evaluation of Retrofit Bridge Railings and Transition, FHWA-RD-96-032, *C. Eugene Buth, Wanda L. Menges.* This report covers the study of crash testing to evaluate new retrofit bridge railings, and the redesign, if necessary, according to established guidelines.

Earth and Aggregate Surfacing Design Guide for Low Volume Roads, FHWA-FLP-96-001, *Peter Bolander, Debbie Marocco, Rich Kennedy.* This guide clarifies surfacing design process' and performance criteria. Also included is the *Surface Thickness Program* by the Forest Service, US Department of Agriculture, Version 2.0.

National Conference on Wood Transportation Structures, FLP-GTR-94. This is a manual that was produced by the USDA Forest Service and Forest Products Laboratory (FLP) to assist in the dissemination of information related to wood utilization in transportation applications.

Environmental effects of highway runoff water. A literature review, VTI rapport No. 391A, *Lennart Folkeson.* Reference are given to literature on highway-runoff treatment methods and facilities. The treatment of soil and runoff water is discussed from an ecological standpoint.

Relation between winter road maintenance and road safety, VTI rapport No. 399A, *Hans Savenhed.* This publication discusses the importance for the road administrator to know the correlation between traffic safety and maintenance routines. Data that was collected between 1988 and 1990 were linked to traffic and accident data.



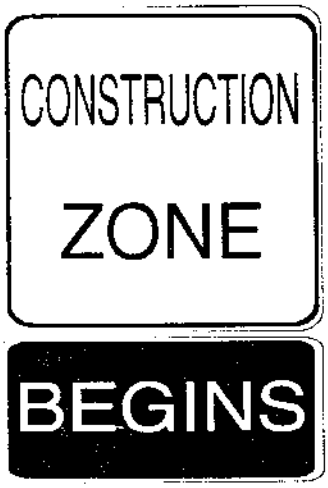
Emission during the US Transient test for some diesel engines, VTI rapport No. 408A, *Henrik Jonsson.* This study is of diesel engine data for the US transient driving cycle. The projects goal is to estimate the effects of exhaust emissions during both stationary and transient conditions, and to discover the possible effects of cold start emissions.

Rural Roads and Bridges: Management Issues Facing Local Highway Officials. This US Department of Agriculture publications covers: personnel training (cooperative arrangements and the effects of ISTEA), and the treatment of intergovernmental aide.

Rural Roads and Bridges: Condition and Status of Roads. This US Department of Agriculture publication covers: types of road surface, conditions of roads, needed improvements, management practices and consideration for revenue expansion, sharing resources and reducing services.

Rural Roads and Bridges: Condition and Financing of Local Bridges. This US Department of Agriculture publication covers: the age and condition of bridges (bridges less than 20 feet, bridges 20 feet and more and sufficiency ratings) funding adequacy, and policy options (reducing operating costs, accommodating changes in travel demands and raising additional revenues).

Protective Systems for Spills of Hazardous Materials, Volume I: Final Report, FHWA-RD-96-097, *Eugene R. Russell, Sr.* This report develops a methodology to identify 11 generalized ranked extreme risk scenarios and identified protective systems for each. (Companion Report: FHWA-RD-96-098)



Protective Systems for Spills of Hazardous Materials, Volume II: Guidelines, FHWA-RD-96-098, *Eugene R. Russell, Sr.* This report presents the information on the protective systems that could be considered for particular extreme risk situations. (Companion Report: FHWA-RD-96-097)

Channel Scour at Bridges in the United States, FHWA-RD-95-184, *Mark L. Landers, David S. Mueller.* This report documents and analyzes the methods that are available to predict, measure and interpret scour data and presents an extensive pier scour measurement database.

Traffic and Pavement Surface Monitoring Issues, Transportation Research Record 1536. This report addresses pavement design, management and performance as related to this topic.

Transportation Law Issues 1996, Transportation Research Record 1527. This report covers planning and administration as it applies to transportation law.

Cost-Effective Preventative Pavement Maintenance, NCHRP Synthesis 223. This synthesis describes practices that are coherent to the strategy of cost-effective preventative maintenance for extending pavement life.

Guidelines for Evaluating the Performance of Highway Sound Barriers, CERF, HITEC 96-04. HITEC measures the performance of the Sight and Sound Screen against criteria which reflects the needs of a highway community. The Sight and Sound Screen is a post-and-panel wall system that is designed to be a barrier for privacy in residential and commercial properties.

Longitudinal Occupancy of Controlled Access Right-of-Way by Utilities, NCHRP Synthesis 224. This synthesis presents information on state transportation policies, practices, and experiences with occupancy of the right-of-way on controlled access highways.

A Guide for Road Closure and Obliteration in the Forest Service, Engineering 7700. This US Department of Agriculture and Forest Service publication discusses an approach, the principles, priorities, targets, treatments and techniques to road closure and obliteration projects.

Moose-Vehicle Accidents on Alaska's Rural Highways, *Scott E. Thomas, P.E., Dennis Morford, P.E., Keith R. Morberg, P.E.*. This report reviews moose-vehicle accidents on rural highways throughout Alaska. A compilation of historical data has been used to determine the highest locations for moose-vehicle accidents. Characteristics of moose-vehicle collisions are presented in this report. •

For Your Information

Transportation Air Quality:Selected Facts and Figures, U.S. Department of Transportation Federal Highway Administration.
This booklet contains information on air quality and its relationship to transportation and emission trends. It is available on a first come, first served basis. Those interested in obtaining a copy should contact Susan Earp at (907) 451-5320.

Asphalt in Pavement Maintenance, MS-16 Third Edition, Asphalt Institute.
This "how-to-do-it" manual describes pavement maintenance and repair methods which apply to all regions, as well as how to stretch maintenance dollars. It is available for $12, plus $5 per order, shipping and handling from: Asphalt Institute
Research Park Drive
P.O. Box 14052
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The KISS System Outwits Beavers

by David P. Orr, P.E., Technical Assistance Engineer

The Town of South Bristol in Ontario County had a problem. Beavers were making their ponds deeper by plugging an existing road culvert. Despite clearing the pipe and placing a wire-framed gate in front of it, the beavers still prevailed. Constant maintenance was needed just to keep the road from flooding.

The town contacted the New York State Department of Environmental Conservation (DEC). The solutions suggested by the DEC were either impractical, too expensive, or unsuccessful, but their ideas for outwitting the beavers were good.

While visiting South Bristol this summer, I discussed the problem and possible solutions with Roger Kessler, Highway Superintendent.

Good Idea!

The DEC suggested using a "pipe" made of chicken-wire or mesh. The "pipe" provides a quieter water flow. If beavers do not hear water flow, they do not attempt to plug the pipe.

Problem!

Chicken-wire or mesh "pipe" is crushed when a beaver walks on it.

Solution!

We decided to adapt the "pipe" idea by using a fairly stiff section

of concrete wire fabric. Rolled into a tube shape, this fabric supports the weight of a beaver and provides the opening needed to make the flow quiet. The flood control device protects the road and culvert without forcing the beavers to flee.

The Town placed the simple beaver flood control device and it worked! By discussing the problem and getting ideas from differen people, a simple solution was found The KISS system works again!

Follow these tips to make you own simple flood control device:

- The wire mesh pipe must be th same diameter as the pipe it i protecting.
- The wire mesh must be stif enough to support the weight of th beaver. The "pipe" used in Soutl Bristol was 48 inches in diameter The wire mesh was 4 inches by inches with 10-gauge wire.
- The length of the wire "pipe must be at least 4 feet long. If it i too short, the beavers will hear th flow of water and will attempt t stop the flow. Longer is better.
- Contact the NYS DEC fo permission. If the pipe flow is being restricted, the permission will b relatively easy to get. The DEC ca also offer advice if another solution i needed.

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Addressing the Risks from Airbag Inflation for Infants, Children, and Short Drivers

Driver airbags reduce deaths by about 14 percent in all kinds of crashes. Inflating driver airbags also have been implicated in as many as 18 driver deaths, mainly short women.

People at risk of serious injuries from inflating airbags are mainly drivers who sit with their faces or chests very close to the steering wheel. Drivers can do several things to reduce the risk. The first is to use a safety belt because most airbag inflation deaths have involved unbelted people. Also, sit as far away from the steering wheel as possible while still reaching the pedals. Some cars have steering wheels with telescoping adjusters that allow drivers to move the wheel away. Another option is pedal extenders available from Easy Rider Pedal Extenders (818/247-9246) or Drive Master (201/808-9709).

Tests using a dummy designed to represent a shorter female in the third trimester of pregenancy indicate that airbags may provide additional protection to both belted and unbelted drivers. Pregnant women who wish to drive should move the seat back, making sure there's as much room as possible between their abdomens and the steering wheel. Women who cannot do this should have someone else do the driving.

Institute analyses found that fatality risk among children riding in the front seat is higher in vehicles with airbags than without them. Whenever possible, children should ride in the back seat, properly restrained. Some vehicles are equipped with airbag cutoff switches. In these vehicles, infants and children may ride up front if the airbag is deactivated. Never put a rear-facing infant restraint in front of a passenger airbag that hasn't been deactivated.

By following these guidlines, motorists can eliminate the risk of life-threatening inflation injuries. Only when it's impossible to move away from the airbag should people even consider having their airbags disconnected.

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continued from page 1

2. Urban roadways 20 feet or more in width with an ADT of 1000 or more;
3. Roadways where engineering studies indicate a need.

Center line markings may be placed on any undivided 2-way streets and highways. In determining whether to place center line markings on roadways less than 16 feet wide, the risk of vehicles on pavement edges or of drivers being adversely affected by parked vehicles may be considered. Also, when edge line markings are used, the risk of persistent vehicle encroachment into the lane of opposing traffic may be considered.

Edge Line Marking

The FHWA proposes replacing the second paragraph of Section 3B-6 with the following:

"Edge line markings shall be white except that on the left edge of each roadway of divided streets and highways, and 1-way roadways in the direction of travel, they shall be yellow.

Edge line markings shall be placed on paved streets and highways of the following types or with the following characteristics, except when roadway edges are defined by curbs and/or by markings for parking spaces:

1. Freeways;
2. Expressways; and
3. Rural arterials.

Edge line markings should be placed on paved streets and highways of the following characteristics, except when roadway edges are defined by curbs and/or markings for parking spaces:

1. Rural collectors 20 feet or more in width; and
2. Paved streets and highways where an engineering study indicates a need. Edge line markings may be placed on other classes of streets and highways with or without center line markings."

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"Drive like you own the car, not the road."

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