TECHNOLOGY FOR
Alaskan Transportation
DOT Statewide Research, Development, & Technology Transfer
Local Technical Assistance Program

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

Spring 2010 Volume 35, No. 1

In this issue . . .

Expanded Polystyrene Foam:

Coffee Cups to Embankment Fill

by Tom Laurencelle, AK DOT&PF Northern Region Construction

Blocks of expanded polystyrene (EPS) foam, the same material used to manufacture white insulation board, foam coffee cups, and packing peanuts is destined for use as fill material in an upcoming Richardson Highway rehabilitation project north of Fairbanks.

Alaska DOT&PF Northern Region engineers faced the challenge of placing a 24-foot-deep fill, crossed by a 12-foot diameter culvert, on the soft, intermittently frozen ground surrounding Haggard Creek. Test holes drilled along the axis of the culvert location showed fine-grained soils and primarily silts and clays to a depth of at least 30 feet. Placing a heavy fill on top of these materials would inevitably lead to severe settlement, damaging the road surface and possibly crushing the culvert.

Northern Region initially planned to address the issue of soft

(continued on page 2)

A Showcase Event for Maintenance Decision Support Systems

A free one-day event to showcase Maintenance Decision Support Systems(MDSS) will take place on Wednesday, April 28, 2010, at the Millennium Alaskan Hotel at 4800 Spenard Road in Anchorage. You can enroll online at: http://www.utahltap.org/Services/Workshops/productdemoshowcase/MDSS/registration/alaska.php

What is an MDSS?

An MDSS is a computer-based, customizable tool that provides winter maintenance personnel with route-specific weather forecast information and treatment recommendations.

Winter road maintenance is a complex and challenging endeavor for any highway maintenance agency. It involves bringing skilled maintenance employees and their equipment together in a battle against Mother Nature.

Split-second decisions have to be made as to when to offer traffic warnings, what deicing materials to apply, and how plowing is to be routed. These decisions determine the safety and mobility of the driving public.

Since 1999, the Federal Highway Administration's (FHWA) Road Weather Management Program and state transportation departments have invested in the development of MDSS. Through partnerships with national laboratories and a stakeholder community of public, private sector, and academic participants, the MDSS has evolved from a concept to a functioning application.

Benefits of an MDSS include:

- Route-specific weather and road condition forecasts

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Foam Embankments (cont. from page 1)

foundation soils by covering the embankment with a heavy rock surcharge to compress and settle the soil in advance of construction. This approach, common in Alaska earth work, would delay project completion by years and leave the underlying areas of frozen ground vulnerable to future thawing. At the suggestion of the DOT&PF Statewide Research, Development, and Technology Transfer section, the surcharge was eliminated and 12 feet of EPS foam, commonly known as geofoam, was incorporated into the lower portion of the embankment. The foam layer will insulate any permafrost below the project and drastically lighten the road prism, greatly reducing or eliminating future settlement. Twelve feet of earth fill above the layer of EPS will provide ballast against the buoyant force the foam could potentially exert on the roadway if it became submerged.

Geofoam at a Glance	
Density	0.70–2.40 lb/cu. ft.
Compressive Resistance—Min. @ 1% deformation	2.2–15.0 psi
Compressive Resistance—Min. @ 5% deformation	5.1–35.0 psi
Absorption	2–4%, depending on density
Buoyant Force	approximately 60 lbs/cu. ft.
Approximate Unit Cost (material only, FOB Anchorage)	$57–$74/ cu. yd.

A hydrocarbon-resistant membrane will protect the synthetic fill from damage caused by accidental chemical or fuel spills.

The use of expanded polystyrene as structural fill dates back to the mid 1970s, when it was first used in a Pickford, Michigan, bridge approach. Since then, designers have incorporated EPS foam in roadways, airport runways, and vertical construction. Geofoam is typically specified in applications requiring a lightweight embankment where a roadway will cross soft ground, when new earthwork has the potential to damage buried utilities, or if lateral earth pressure is a concern. Designers can also use EPS to reduce heavy truck traffic in sensitive areas, since a trailer load of geofoam weighs a fraction of a load of gravel.

Geofoam's physical properties make it particularly well suited to addressing construction problems related to both permafrost and soft ground. The material is supplied in densities varying from 0.7 to 2.85 pounds per cubic foot, which represents a reduction in fill density of 98% or greater. Each inch of thickness provides an r-value of between 3.7 and 4.0, reducing the risk of destabilizing frozen soils. EPS manufacturers impregnate geofoam with ingredients that repel burrowing insects, such as carpenter ants. Rates of water absorption typically fall below 4% in low-density foams and below 2% in high-density foams. EPS suffers little or no degradation when buried. The Geofoam Research Center reports that blocks unearthed during a construction project in Norway after 20 years of burial were in good enough condition to be reused.

Geofoam fill designs typically include measures to protect against buoyancy-related failures, where the structure becomes partially submerged and literally floats out of position, and damage by spilled hydrocarbons. The roughly 60 pounds per cubic foot of buoyant force exerted by a foam embankment is usually countered by capping the geofoam with sufficient weight of dirt, rock, or gravel. If design considerations make this impossible, straps passing over the foam blocks and attached to screw anchors may provide additional hold-down force. Contact with hydrocarbons such as spilled fuel or solvents can dissolve EPS, so a chemical-resistant membrane overlies most geofoam highway fills.

Geofoam is available from numerous sources outside Alaska and from Insulfoam's manufacturing facility in Anchorage. The material costs between $57 and $74 per cubic yard, f.o.b. Anchorage, depending on the foam density and quantity ordered.

For more information:

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Jim Sweeney, technical engineer; jim.sweeney@alaska.gov
Tom Laurencelle, Northern Region engineering assistant II; thomas.laurencelle@alaska.gov

Related Links

Geofoam Research Center: http://geofoam.syr.edu/GRC_AboutGRC.asp
Insulfoam, LLC (company with an Anchorage plant producing Geofoam): http://insulfoam.com/
Paper discussing buoyancy issues: http://www.geosyscorp.com/noframes/documents/Buoyancy.pdf
Example of a Geofoam spec: http://harborfoam-inc.com/pdf/Harbor-Foam-Geofoam-Specification.pdf

MDSS showcase (continued from page 1)

- Optimized treatment recommendations for treatment type, application rate, and timing
- More efficient use of salt and other deicing materials
- Reduced environmental impact from deicing chemicals
- Better use of manpower and equipment
- Near real-time road condition reporting
- Training for new and seasoned maintenance personnel using historical layback

These all translate into a safer, more efficient transportation system.

Showcase Agenda

The event, which is co-sponsored by the AASHTO Technology Implementation Group, will kick off on the evening of Tuesday, April 27, for a casual meet and greet from 6:00 p.m. to 8:00 p.m. The agenda schedule for the next day, Wednesday, April 28, is outlined in the table below.

MDSS Showcase Agenda

Enroll at: http://www.utahltap.org/Services/Workshops/productdemoshowcase/MDSS/registration/alaska.php

Time	*Session*	*Topic*	*Speakers*
7:30	Registration		
8:00	Opening Session	Welcome	Jack Stickel, Moderator – Alaska DOT & Public Facilities
		Challenging Remarks	Michael Coffey, Statewide Maintenance and Operations Chief Office of the Commissioner - Alaska DOT & Public Facilities
		Opening Remarks	Sandra Garcia-Aline, FHWA Alaska Assistant Division Administrator
8:40	Introduction to MDSS	AASHTO TIG & PFS	Dave Huft, *SDDOT*
9:00	MDSS Demo 1	Illinois DOT	P. Dean Kernan, IDOT & Shawn Truelson, Telvent DTN
10:00	Break		
10:15	MDSS Demo 2	Indiana DOT	Tony McClellan, INDOT & Ben Hershey, Meridian Inc.
11:15	Mobile Data Collection	MDC Requirements	Ben Hershey, Meridian Inc.
		Mobile Data Collection	Chris Rennie, IWAPI, Inc.
		Mobile Data Collection	Mark Neill, Intelligent Devices Inc.
12:00	Lunch		
1:00	MDSS Demo 3	City of Denver	Mike Chapman, NCAR & Pat Kennedy, City of Denver
2:00	MDSS Demo 4	E-470 Public Highway Authority	Kevin Petty, Vaisala Inc.
2:15	Break		
2:30	MDSS Deployment Issues	Panel Discussion Potential Topics: ○ *Training* ○ *Communications* ○ *Management Support* ○ *Employee Acceptance* ○ *Expectations*	Dave Huft, Facilitator Panelists: ○ Michael Coffey, Alaska DOT & Public Facilities ○ Tony McClellan, INDOT ○ Pat Kennedy, City of Denver ○ P. Dean Kernan, IDOT
3:45	Wrap-Up	Closing Remarks	Jack Stickel, Alaska DOT & Public Facilities
		Evaluation Forms	Ray Murphy, FHWA
4:00	Adjourn		

Federal Highway Administration Revises Rules to Make Highways Safer

U.S. Transportation Secretary Ray LaHood Calls Updates Needed and Welcome

WASHINGTON—As part of his continuing effort to improve safety on the nation's roads and bridges, U.S. Transportation Secretary Ray LaHood today released a comprehensive update to the *Manual on Uniform Traffic Control Devices* (MUTCD). The manual, which has been administered by the Federal Highway Administration (FHWA) since 1971, sets the standards for road safety throughout the country.

"Safety is this department's top priority," said Secretary LaHood. "These new and updated standards will help make our nation's roads and bridges safer for drivers, construction workers, and pedestrians alike."

The MUTCD is the national standard for all traffic control devices, including traffic signs, pavement markings, signals, and any other devices used to regulate, warn, or guide traffic. Ensuring uniformity of traffic control devices across the nation—from their messages and placement to their sizes, shapes, and colors—helps to reduce crashes and traffic congestion. This is the first comprehensive update to the manual since 2003.

The MUTCD's 2009 edition features many new and updated requirements, ranging from changes in highway signs and bike lanes to the color of high-visibility garments worn by road workers. Most changes are a result of extensive research; however, seven changes stem from recommendations from the National Transportation Safety Board. This is the largest number of NTSB recommendations adopted by the MUTCD at one time.

"Adopting the lessons learned in recent years will help make roads safer for everyone," said Federal Highway Administrator Victor Mendez.

By requiring better pavement markings that can increase bike lane safety, and extending walk times for pedestrians at crosswalks, the updated MUTCD furthers the "complete streets" concept—an effort long championed by the FHWA to ensure roads accommodate all types of travel, not just automobiles.

Among the other new provisions in the MUTCD:

- Replacing highway signs with brighter, larger, and more legible ones that are easier to understand at freeway speeds. States will begin using the newer signs as existing ones wear out.
- Adding different lane markings for lanes that do not continue beyond an intersection or interchange to give drivers more warning that they need to move out of the lane if they don't intend to turn.
- Expanding the use of flashing yellow arrow signals at some intersections to give a clearer indication that drivers can turn left after yielding to any opposing traffic.
- Changing the formula used to calculate crosswalk times to give walkers more time.
- Identifying electronic toll collection lanes with purple signs—the first time purple has been sanctioned for use on highway signs.
- Adding overhead lane-use control signs to reduce confusion among drivers in unfamiliar multilane roadways.

For an overview of the new rules and recommendations, visit http://mutcd.fhwa.dot.gov.

Or contact Doug Hecox, phone: 202-366-0660.

The Basics of a Good Road

We have known how to build good roads for a long time. Archaeologists have found ancient Egyptian roads that carried blocks to the pyramids in 4600 BCE. Later, the Romans built an extensive road system, using the same principles we use today. Some of these roads are still in service.

If you follow the basic concepts of road building, you will create a road that will last. The ten commandments of a good road are:

1. Get water away from the road.
2. Build on a firm foundation.
3. Use the best materials.
4. Compact all layers properly.
5. Design for traffic loads and volumes.
6. Design for maintenance.
7. Pave only when ready.
8. Build from the bottom up.
9. Protect your investment.
10. Keep good records.

1. Get water away from the road

We can't overemphasize the importance of good drainage. Engineers estimate that at least 90% of a road's problems can be related to excess water or to poor water drainage. Too much water in any layer of a road's structure can weaken that layer, leading to failure.

In the surface layer, water can cause cracks and potholes. In lower layers it undermines support, also causing cracks and potholes. A common sign of water in an asphalt road surface is alligator cracking—an interconnected pattern of cracks forming small irregular-shaped pieces that look like alligator skin. Edge cracking, frost heaves, and spring breakup of pavements also point to moisture problems.

To prevent these problems, remember that water

- flows downhill,
- needs to flow someplace, and
- is a problem if it is not flowing.

Effective drainage systems divert, drain, and dispose of water. To do this they use interceptor ditches and slopes, road crowns, and ditch and culvert systems.

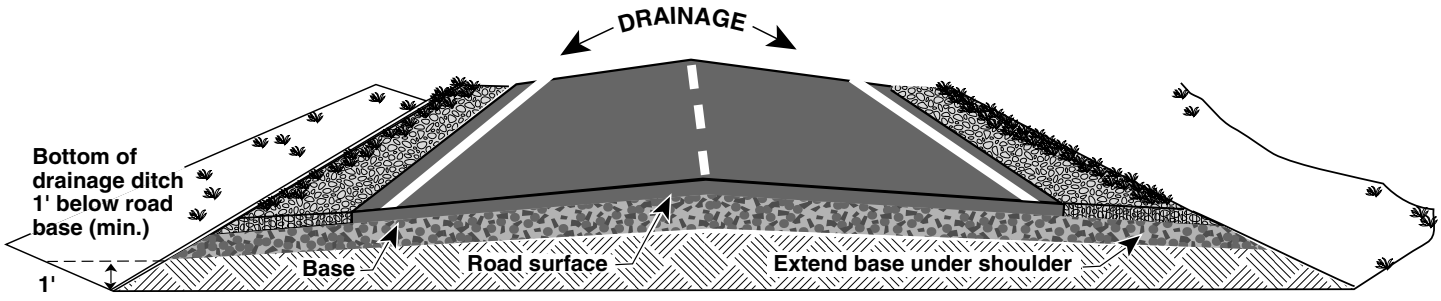
Divert: Interceptor ditches, located between the road and higher ground along the road, keep the water from reaching the roadway. These ditches must slope so they carry water away from the road.

Drain: Creating a crown in the road so it is higher along the centerline than at the edges encourages water to flow off the road. Typically a paved crown should be 1⁄4 in. higher than the shoulder for each foot of width from the centerline to the edge. For gravel surfaces, the crown should be 1⁄2 in. higher per foot of width. For this flow path to work, the road surface must be relatively watertight.

Road shoulders also must be sloped away from the road to continue carrying the flow away. Superelevations (banking) at the outside of curves will also help drain the road surface.

Dispose: A ditch and culvert system carries water away from the road structure. Ditches should be at least one foot lower than the bottom of the gravel road layer that drains the roadway. They must be kept clean and must be sloped to move water into natural drainage. If water stays in the ditches it can seep back into the road structure and undermine its strength.

Ditches should also be protected from erosion by planting grass or installing rock and other erosion control measures. Erosion can damage shoulders and



Proper drainage keeps road surface hard.

ditches, clog culverts, undermine roadbeds, and contaminate nearby streams and lakes.

Evaluate your ditch and culvert system twice a year to ensure that it works. In the fall, clean out leaves and branches that can block flow. In spring, check for and remove silts from plowing and any dead plant material left from the fall.

2. Build on a firm foundation

A road is only as good as its foundation. A highway wears out from the top down but falls apart from the bottom. The road base must carry the entire structure and the traffic that uses it.

To make a firm foundation you may need to stabilize the roadbed with chemical stabilizers, large stone called breaker run, or geotextile fabric. When you run into conditions where you suspect that the native soil is unstable, work with an engineer to investigate the situation and design an appropriate solution.

3. Use the best materials

With all road materials you pay now or pay later. Inferior materials may require extensive maintenance throughout the road's life. They may also force you to replace the road prematurely.

Crushed aggregate is the best material for the base course. The sharp angles of the crushed material interlock when they are compacted. This supports the pavement and traffic by transmitting the load from particle to particle. By contrast, rounded particles act like ball bearings, moving under loads.

Asphalt pavement materials must be of the highest quality, designed for the conditions, obtained from established firms, and tested to ensure they meets specifications.

4. Compact all layers

In general, the more densely a material is compacted, the stronger it is. Compaction also shrinks or eliminates open spaces (voids) between particles. This means that less water can enter the structure. Water in soil can weaken the structure or lead to frost heaves. This is especially important for unsurfaced (gravel) roads. Use gravel that has a mix of sizes (well-graded aggregate) so smaller particles can fill the voids between larger ones. Good compaction of asphalt pavement lengthens its life.

5. Design for traffic loads and volumes

Design for the highest anticipated load the road will carry. A road that has been designed only for cars will not stand up to trucks. One truck with 9 tons on a single rear axle does as much damage to a road as nearly 10,000 cars.

Rural roads may carry log trucks, milk trucks, fire department pumper trucks, or construction equipment. If you don't know what specific loads the road will carry, a good rule of thumb is to design for the largest piece of highway maintenance equipment that will be used on the road.

A well-constructed and maintained asphalt road should last 20 years without major repairs or reconstruction. In designing a road, use traffic counts that project numbers and sizes of vehicles 20 years into the future. These are only projections, at best, but they will allow you to plan for traffic loadings through a road's life.

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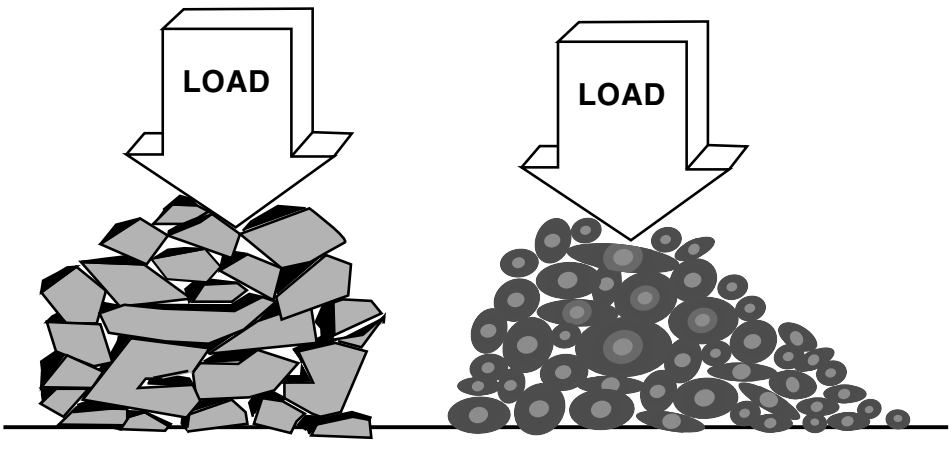
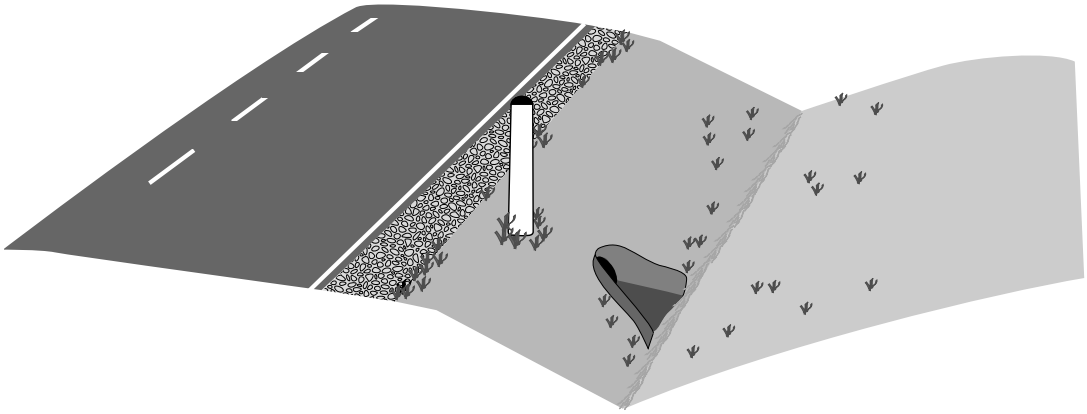


Angular particles are more stable than rounded particles.

Good Roads (continued)



Mark culverts with a post so they can be located easily.

6. Design for maintenance

Without maintenance a road will rapidly deteriorate and fail. Design your roads so they can be easily maintained.

This means:

- adequate ditches that can be cleaned regularly,
- culverts that are marked for easy locating in the spring;
- enough space for snow after it is plowed off the road;
- proper cross slopes for safety, maintenance, and to avoid snow drifts;
- roadsides that are planted or treated to prevent erosion; and
- roadsides that can be mowed safely.

A rule of thumb for adequate road width is to make it wide enough for a snowplow to pass another vehicle without leaving the travelled way.

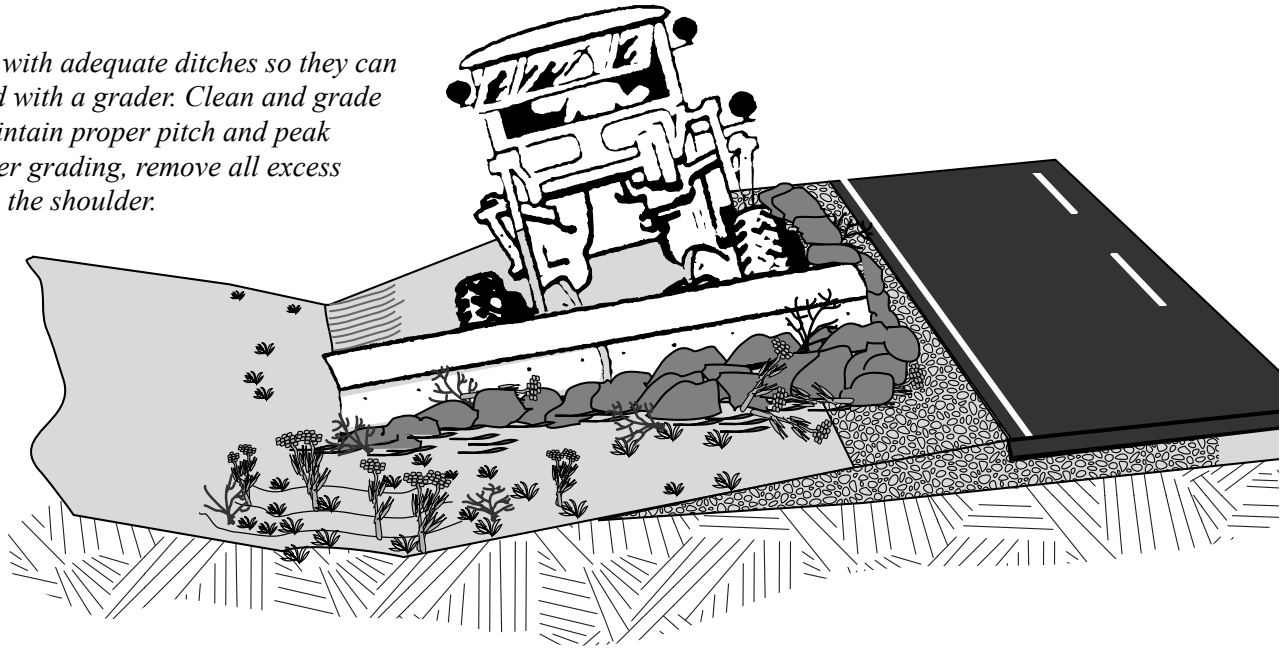
7. Pave only when ready

It is not necessary to pave all your roads immediately. There is nothing wrong with a well-built and well maintained gravel road if traffic loads and volume do not require a paved surface. Three hundred vehicles per day is the recommended minimum to justify paving.

Don't assume that laying down asphalt will fix a gravel road that is failing. Before you pave, make sure you have an adequate crushed stone base that drains well and is properly compacted. The recommended minimum depth of crushed stone base is 10 inches depending on subgrade soils.

A road paved only when it is ready will far outperform one that is constructed too quickly.

Design roads with adequate ditches so they can be maintained with a grader. Clean and grade ditches to maintain proper pitch and peak efficiency. After grading, remove all excess material from the shoulder.



8. Build from the bottom up

This commandment may seem obvious, but it means you shouldn't top dress or resurface a road if the problem is in an underlying layer. Before you do any road improvement, locate the cause of any surface problems. Choose an improvement technique that will address the problem. This may mean recycling or removing all road materials down to the native soil and rebuilding everything. Doing any work that doesn't solve the problem is a waste of money and effort.

9. Protect your investment

The road system can be your municipality's biggest investment. Just as a home needs painting or a new roof, a road must be maintained. Alaska's severe climate requires more road maintenance than in milder places.

Do these important maintenance activities:

Surface: grade, shape, patch, seal cracks, control dust, remove snow and ice

Drainage: clean and repair ditches and culverts, remove all excess material

Roadside: cut brush, trim trees and roadside plantings, control erosion

Traffic service: clean and repair or replace signs

10. Keep good records

Your maintenance will be more efficient with good records. Knowing the road's construction, life, and repair history makes it much easier to plan and budget its future repairs. Records can also help you evaluate the effectiveness of the repair methods and materials you used.

Good record keeping starts with an inventory of the system. It should include the history and surface condition of the roadway, identify and evaluate culverts and bridges, and note ditch conditions, shoulders, signs, and such structures as retaining walls and guardrails.

Update your inventory each year or when you repair or change a road section. A formal pavement management system can help use these records and plan and budget road improvements.

Resources

The Basics of a Good Road #17649, UW-Madison, 15 min. videotape. Presents the Ten Commandments of a Good Road. Videotapes are loaned free through County Extension offices.

Asphalt PASER Manual (39 pp), *Concrete PASER Manual* (48 pp), *Gravel PASER Manual* (32 pp). These booklets contain extensive photos and descriptions of road surfaces to help you understand types of distress conditions and their causes. A simple procedure for rating the condition helps you manage your pavements and plan repairs.

Roadware, a computer program that stores and reports pavement condition information. Developed by the Transportation Information Center and enhanced by the Wisconsin Department of Transportation, it uses the PASER rating system to provide five-year cost budgets and roadway repair/reconstruction priority lists.

Wisconsin Transportation Bulletin factsheets, available from the Transportation Information Center (TIC):

Road Drainage, No. 4. Describes drainage for roadways, shoulders, ditches, and culverts.

Gravel Roads, No. 5. Discusses the characteristics of a gravel road and how to maintain one.

Using Salt and Sand for Winter Road Maintenance, No. 6. Basic information and practical tips on how to use de-icing chemicals and sand.

Culverts—Proper Use and Installation, No. 15. Selecting and sizing culverts; designing, installing, and maintaining them.

Geotextiles in Road Construction/Maintenance and Erosion Control, No. 16. Definitions and common applications of geotextiles on roadways and for erosion control.

Crossroads, an eight-page quarterly newsletter published by the TIC carries helpful articles, workshop information, and resource lists.

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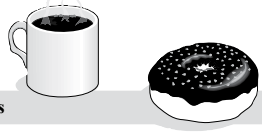
This fact sheet was written by Thomas Nelson to accompany the videotape, *The Basics of a Good Road*. It is based on a fact sheet produced by the Vermont Local Road Program.

Training and Meeting Calendar



Meetings Around Alaska

Society	Chapter	Meeting Days	Location	Contact
ASCE	Anchorage	Monthly, 3rd Tues., noon	Moose Lodge	
	Fairbanks	Monthly, 3rd Wed., noon except Sept. and Feb.	Westmark Hotel	
	Juneau	Monthly, 2nd Wed., noon except June–Aug	2nd Fl. Conf. Rm at AEL&P	
ASPE	Anchorage	Monthly, 2nd Thurs., noon except summer	Coast International Inn	Jennifer Gibson, 343-8130
	Fairbanks	Monthly, 1st Mon., noon	Regency Hotel	
	Juneau	Monthly, 2nd Wed., noon except June–Aug.	2nd Fl. Conf. Rm at AEL&P	
ASPLS	Anchorage	Monthly, 3rd Tues., noon	Sourdough Mining Co.	George Strother, 745-9810
	Fairbanks	Monthly, 4th Tues., noon	Westmark Hotel	
	Mat-Su Valley	Monthly, last Wed., noon	Windbreak Cafe	
AWRA	Northern Region	Monthly, 3rd Wed., noon	Rm 531 Duckering Bldg., UAF	Larry Hinzman, 474-7331
ICBO	Northern Chapter	Monthly, 1st Wed., noon except July and Aug.	Zach's Sophie Station	Tom Marsh, 451-9353
ITE	Anchorage	Monthly, 1st Tues., noon except July and Aug.	Ak. Aviation Heritage Museum	Karthik Murugesan, 272-1877
IRWA	Sourdough Ch. 49	Monthly, 3rd Thurs., noon except July & Dec.	West Coast International Inn	
	Arctic Trails Ch. 71	Monthly, 2nd Thurs., noon except July & Dec.	Zach's Sophie Station	
Asphalt Pavement Alliance	Alaska	3rd Wednesday of every other month	varies	John Lambert 267-5294
PE in Government	Anchorage	Monthly, last Fri., 7 a.m.	Elmer's Restaurant	
Soc. of Women Eng.	Anchorage	Monthly, 2nd Wednesday at 5:30pm.	DOWL HKM	Stephanie Mormilo at 562-2000 Virginia Groeschel at 562-2000

Training in April

American Recovery & Reinvestment Act (ARRA) Grant Workshop—FTA
Apr. 20 in Anchorage

Cerified Erosion & Sediment Control Lead (government employees only)
Apr. 13–14 in Anchorage

Cerified Erosion & Sediment Control Lead (IECA sponsored for private & public sector)
Apr. 8–9 in Anchorage

Local Storm Water Plan Review Requirements in the Fairbanks Urbanized Area
Apr. 7 in Fairbanks

Maintenance Decision Support Systems
Apr. 28 in Anchorage

NHI 130088: Bridge Construction Inspection
Apr. 26–29 in Anchorage

Training in May

Cerified Erosion & Sediment Control Lead (government employees only)
May 4–5 in Fairbanks

For information about T2-sponsored training, contact:

Dave Waldo at 907-451-5323,
david.waldo@alaska.gov
or
Simon Howell at 907-451-5482,
simon.howell@alaska.gov
or go to: www.dot.state.ak.us

Transportation Resource Libraries Online

Research and Technology Transfer

http://www.dot.state.ak.us/stwddes/research/search_lib.shtml

Use this library to search for Alaska DOT&PF digitized research reports and manuals, audio and video tapes, interactive resources, and software not kept in the Mather Library. This library contains over 1,100 resources that can be downloaded from the web or requested through:

Research & Technology Transfer
2301 Peger Rd.
Fairbanks, AK 99709-5399
Phone: 907-451-5320
Fax: 907-451-5340
suzanne.harold@alaska.gov

Keith B. Mather Library

http://ntl.bts.gov/exit/vdot.html

This link will connect you to RITA. From there select "Continue" or "VDOT OneSearch" to access over 40,000 entries of Alaska DOT&PF's library resources that are stored and maintained at the Fairbanks Geophysical Institute, International Arctic Research Center (Mather) Library. If you have questions about any DOT items, please contact:

Keith B. Mather Library
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International Arctic Research Center
930 Koyukuk
P.O. Box 757355
Fairbanks, AK 99775-7355
Phone: 907-474-7512
Fax: 907-474-7290 or 907-474-2640
gilibrary@gi.alaska.edu

TRR Journal Online

http://trb.metapress.com/home/main.mpx

A full compilation of papers since the 1996 series of the *Transportation Research Record*, the journal of the Transportation Research Board. This journal is accessible electronically. It contains technical papers prepared by researchers that are peer-reviewed by TRB committee members. Included are selected papers from the TRB annual meetings, along with some papers from other sources and conferences.

The Keith B. Mather Library is physically located at UAF, on the 2nd floor, IARC Akasofu Building, 930 Koyukuk Drive. It is open Monday through Friday, 8:00 a.m. to 5:00 p.m.

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Alaska T2 Training Listserve for 2010

Stay informed on training scheduled for federal, state, and local transportation agencies, including consultants, contractors, and other transportation professionals. Now you can receive updated training information every few weeks. To subscribe to the listserve via a web browser connect to the following address:

http://list.state.ak.us/guest/RemoteListSummary/DOT_Training_Notification_list

Simply enter your e-mail address into the text box of the online Mailing List Summary Form. You'll receive a confirmation e-mail and then you'll be notified periodically as new trainings are posted to our website.

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http://www.dot.state.ak.us
- select "Inside DOT&PF"
- select "Research & Technology"

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