ALASKA TRANSPORTATION
TECHNOLOGY TRANSFER

Fall 1989 - Volume 13
Alaska Transportation Technology Transfer Program

In This Issue

Winter Operations
Chute It and Save
Tort Liability
Salt Control

This newsletter is funded by a grant from the Federal Highway Administration.

SAFE WINTER DRIVING

Although Alaska's vast size means widely varying winter weather patterns, there are driving habits that are appropriate everywhere. Let's review some ideas to prevent winter accidents.

Speed - Give yourself plenty of time to get where you're going. Posted speed limits are for dry conditions, but on icy roadways, half the speed limit may be suicide. Vary your driving speeds according to the road conditions.

Vision - No other factor is as important for safe driving. Place frost shields in critical view areas. Clear all windows of snow, ice, or condensation. Also, remove snow from the hood. This snow turns into a quick white-out, and it gets into the air intake and ices the inside of the windshield. Use garage time to wash windows inside and out to reduce the accumulated film. Wear sunglasses if sunlight is reflecting from snow.

Lights - Even though you can see during twilight and daylight, drive with low-beam headlights (not parking lights). Periodically clean all lenses because dirty headlights can cut visibility by 50 percent or more. Don't forget the directional lights, taillights, and rotating lights.

Tires - Be sure your tires have adequate tread. Extra weight over the rear wheels might improve traction a little, but it's at the expense of steering control and longer stopping distances. The tradeoff isn't worth the risk.

Lower tire pressures do not increase traction, and underinflated tires can seriously affect steering. Keep in mind that for every 10 degree F drop, the tire air pressure goes down about one psi. (A tire inflated to 45 psi at +30 degrees F would be 39 psi at -30.) Remember, underinflated tires are the major cause of tire failure.

Ice - At +30 degrees F, ice is twice as slippery as at 0 degrees F. As temperatures plunge to -30, it becomes "dry", so the relatively warm times can be the trickiest.

Ice forms first and lasts longer on bridges and in the shade. If you hit an

(continued on page 2)

TIPS FOR REDUCING TORT LIABILITY

Alaska has undergone an erosion of "sovereign immunity" statutes in this decade. Other states in similar situations are now faced with millions of dollars in claims pending against them. We must learn from their mistakes and protect ourselves from tort liability. Here are 13 practical tips:

1. **Define staff duties, responsibilities, and authority.**

2. **Understand and perform duties satisfactorily.**

3. **Use competent professionals to assist in decision making.**

4. **Maintain adequate records.** Establish systems to provide facts about existing conditions. Such systems include: traffic accident records, procedures for identifying high-accident locations, and inventory procedures which will provide current information about the conditions of transportation facilities and traffic control devices.

5. **Provide an inspection system.** Implement a regular inspection system. These inspections cover the conditions of facilities and traffic control devices. Check traffic signs and signals at least twice a year, both day and night. Examine traffic markings, particularly in winter and early spring. Inspect temporary traffic control device(s) on a daily basis. Establish a chain of command for inspections for reporting and promptly correcting defects.

6. **Establish a complaint response system.** Implement a procedure for handling complaints. Designate one person to receive all grievances and take appropriate action. Effective handling of

(continued on page 3)

Winter Driving
(continued from page 1)
unexpected patch, don't try to brake, accelerate, or downshift. Let up on your accelerator and idle your vehicle through the slippery area. If you skid, quickly take your foot off the gas and brake, and steer into the direction of the skid. Hold the steering wheel firmly and don't turn sharply. Use a light touch to correct the swerve.

Braking - For front and rear wheel drive vehicles with disc or drum brakes, the National Safety Council recommends squeezing the brakes with a slow steady pressure. When you feel them starting to lock, ease off until the wheels are rolling, then squeeze again. Pumping the brakes is no longer considered the most effective technique. Be sure the brakes are adjusted and balanced to minimize skidding.

Following Distance - Maintain at least twice the normal following distance on snow or ice. Accident Review Boards report that rear-end collisions account for most of the winter accidents. If you are being followed too closely, maintain greater breaking distance for gradual stops. Brake slowly when entering turnarounds while plowing or sanding. During adverse weather conditions, motorists may use your vehicle as a pilot car. Be alert for this hazardous situation!

Ventilation - Crack windows for flow-through ventilation, even at very low temperatures. Be sure that the fresh air intake is free of ice and snow.

Towing - All employees should be out of both vehicles when hooking or unhooking chains or cables. Fingers have been crushed and amputated when unaware drivers moved the vehicles before everything was ready.

Dead Batteries - When jumping batteries, connect one cable to the (+) terminal of each battery. Then connect one end of the second cable to the (-) terminal of the booster battery and the other end to a nut or bolt on the dead vehicle's engine. Do NOT connect it to the (-) of the discharged battery; that's close to any possible hydrogen gas production and unnecessarily increases the chances of an explosion. Start the engine of the helper vehicle and let it run a few minutes, then start the disabled vehicle's engine. Remove cables in the exact REVERSE order.

Always wear eye protection, preferably chemical goggles, when jumping batteries, and avoid placing your head directly over either battery. Explosions do happen!

Safety Belts - Wear them.

Experience is a hard teacher, and that's where these ideas came from. They should help you handle Alaska's winter driving challenge. Have a safe winter!

Adapted from the Northwest Technology Transfer Center Bulletin, Winter 1989.

News & Views

ALASKA T2 HOSTS 1990 NATIONAL RTAP CONFERENCE

The Alaska T2 Program is proud to host the 1990 National Rural Technical Assistance Program Conference and invites all of you to attend and help us provide an Alaskan welcome to our visitors from Outside. Registration will be on Sunday, August 5, 1990; sessions begin on Monday, August 6th and continue through Thursday, August 9th. We will be keeping some conference traditions, and initiating others. More on that in the next newsletter.

The conference will focus on current issues affecting the transportation industry such as post-interstate funding and policies; innovative T2 funding strategies on federal and local levels; and translating research findings into useful, applied technology via T2 Centers. It will also address the nuts and bolts operations of T2 Centers around the nation. The conference format will incorporate national keynote speakers, panel discussions, concurrent workshops, and engineering field trips. There will be activities for spouses (female and male) and children.

We look forward to seeing you at this conference and making it an enjoyable learning experience. Initial packets of information will be mailed over the next few months; future issues of this newsletter will also carry 1990 RTAP Conference updates.

ANNOUNCING...

The new Manual on Uniform Traffic Control Devices (MUTCD) is coming. T2 will alert you when the Government Printing Office has a projected release date.

SALT CONTROL

Although these words of caution are for everyone who uses deicing salts for those winter slippery spots, they especially apply to Alaskan communities where winters are "warm and wet".

Use the minimum amount of chemicals that will produce desired results. This saves money and controls the amount of chemical that enters the environment. Rock salt, for example, damages plants and pollutes water when it runs off the road. It also deteriorates car bodies and bridges.

Deicing chemicals should be spread onto the middle one-third of the pavement at a maximum rate of 500 pounds per two-lane mile. Usually 200 to 400 pounds is sufficient. Material applied in a four to eight foot strip along the centerline, or the high side of the cross section of pavement, is effective on two-lane pavements with a low or medium traffic count. This method exposes bare pavement in the center of the road, and heat from the sun speeds the melting rate. (See "Chute It and Save.") Gravity and traffic help to move the deicing brine toward both shoulders.

Adapted from HERPICC Pothole Gazette, December 1988.

A CHUCKLE IN TIME

If your employees are fun-loving people who laugh a lot, they'll work better and faster, and even stay awake more. Some recent studies found that:

* People in a good mood organize data better.
* Humor relieves the boredom of tedious work - and that aids problem solving.
* People in good spirits prove more creative in word association, categorizing things and tasks involving memory.
* Humor improves decision making and negotiating abilities.
* Laughter tends to boost performance when it's related to the task at hand.
* Humor improves group as well as individual performance.

Reprinted from Rural Technical Assistance Program Newsletter, May 1989.

Goodbye Mike Travis

We reluctantly say goodbye to Mike Travis, who has been our faithful T2 Director on the DOT side since 1988.

We wish Mike the best in his new job, but we will miss his cheerful outlook and his dedication to making the Alaska T2 Program highly successful. Thanks Mike! It has been great working with you!

WINTER CHECKLIST

Readers from last year will remember our article urging winter preparedness. Winter's almost here again, so here's a brief re-cap that we hope will be useful:

* Inspect all equipment well in advance of the first storm. Make all necessary repairs.
* Sanders must be calibrated, mounted, tested, and loaded. (See the insert in this issue.)
* Inventory equipment parts and supplies, and order replacements, especially those that typically break during a snowstorm. Store them where they are easily accessible.
* Store adequate amounts of abrasives and chemicals. Before the snow flies, stockpile 1/2 to 3/4 of the estimated amount you will need for the winter.
* At the end of each winter day, inspect and fix vehicle wipers, lights, oil, antifreeze, blades, and hydraulic systems, then load and refuel.
* Set a 100-hour pattern for the full preventive maintenance sequence for equipment.
* Also, now is the time to develop a contingency plan for hiring or contracting for emergency services such as snow plows, dump trucks to haul snow, front-end loaders, etc.

Preparedness and a smooth-running winter operation go hand-in-hand.

CHUTE IT AND SAVE

Some highway maintenance folks back in the Midwest have decided to replace salt spinners with plastic chutes on all their trucks. "We hardly use the spinners any more, except where there are curbs and gutters. On most roads, salt from spinners bounces off and ends up in the ditch," according to the shop superintendent who described the chutes.

The chute connects at the outlet hole of the spreader and directs salt in a windrow along the center line of the road. Once the salt brine starts forming there, the road slope and traffic action spreads it across the traffic lanes. "It seems to work real well," the superintendent says.

The county garage fabricates the salt chutes, connecting eight-inch PVC pipe to the spreader with a hinge-like quick coupler. The spreading end is supported by a chain on a hook welded to the spreader, which directs the salt to within six inches of the road. When the box is raised, the driver can shorten the chain to raise the chute's end. Removing the pin and reversing the coupler allows the chute to pivot to the center of the truck box.

Adapted from HERPICC Pothole Gazette, December 1988.

Tort Liability
(continued from page 1)

complaints benefits legal and public relations.

7. **Keep good maintenance records.** Complete and current maintenance records provide information about repairs, including what the trouble was, repairs made, and materials used.

8. **Use current design criteria.** The designs of facilities or traffic control devices must be consistent with adopted policies, guidelines, standards, and manual specifications.

9. **Develop standards of performance.** Be sure your performance standards for design, construction, operations, and maintenance are known and understood by all staff.

10. **Follow rational procedures for priority setting.** Establish procedures for prioritizing improvements. This would include the cost effectiveness of alternatives.

11. **Conduct design and operational reviews.** Review the design and operation of new facilities or traffic control changes. Recommend specifications or design changes to highway designers. Inspect active construction projects.

12. **Inform employees of "reasonable care."** Impress all employees with the importance of reasonable care in doing their jobs.

13. **Avoid false economies.** Foolishly cutting necessary expenditures in order to appear fiscally responsible to the taxpayer inevitably leads to careless and negligent work.

Adapted from Oregon Roads, Special Edition, 1988 Summary and Road Business, December 1988.

Technology for Alaskan Transportation is a quarterly newsletter that informs local transportation people in government and industry of useful publications and services. The newsletter reports on practical information, new technology, and learning opportunities such as workshops, seminars and videotapes. To get on our mailing list, to receive any of our services, or to contribute to the newsletter, contact:

Transportation Technology Transfer Program
Room 233 Duckering Building
Fairbanks, Alaska 99775-0660
(907)474-7733

About Our Program

The goal of the Alaska Transportation Technology Transfer Program is to help transportation agencies obtain useful information and training related to transportation needs. The program focuses on technology related to roads, bridges and public transportation. In addition to our newsletter, we provide low-cost seminars and workshops, provide copies of useful technical reports and videos upon request, and answer phone and mail inquiries related to transportation technology. If we don't have the answer, we will refer the question to a suitable specialist.

The Alaska Transportation Technology Transfer Program is administered by the Alaska Department of Transportation and Public Facilities with contract services provided by the University of Alaska Fairbanks, Institute of Northen Engineering. This program is funded by the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities (DOT&PF).

The following people are involved in the program.

DOT&PF Personnel

John D. Martin, P.E.
Chairman of the Advisory Board
Technology Transfer Program
(907)451-5150

Michael Travis
Director
Technology Transfer Program
(907)474-2482

UAF Personnel

Larry Johnson
Program Coordinator
Technology Transfer Program
(907)474-7637

Michelle Johnson
Administrative Assistant
Technology Transfer Program
(907)474-7733

Calendar of Events

We will be happy to include any relevant event you would like to publicize. For more information about events in Alaska, call Michael D. Travis at (907)474-2482, Larry Johnson at (907)474-7637, or Michelle Johnson at (907)474-7733.

1989

September 21: IRWA Course 214, Skills and Expert Testimony. Sponsored by the Arctic Trails Chapter 71, International Right-of-Way Association. Ambassador Room, Regency Hotel. Fairbanks, Alaska. Tuition: $100 member, $125 nonmember. Contact John Bennett, P.L.S. at (907)474-2413.

September 22: IRWA Region 7 Annual Fall Forum. Sponsored by the Arctic Trails Chapter 71, International Right-of-Way Association. Ambassador Room, Regency Hotel. Fairbanks, Alaska. Banquet $20 per person. Contact Jane Brownfield at (907)474-2522.

September 24-26: IRWA Instructor's Certification Clinic. Sponsored by the Arctic Trails Chapter 71, International Right-of-Way Association. DOT&PF Planning Conference Room. Fairbanks, AK. Fee: 125 per person. Contact Sharon McLeod Everette, SR/WA at (907)474-2475 or (907)479-4604 and Pat Thayer at (907)474-2419.

October 26-November 1: Ninth National Conference on Rural Public Transportation: Renewing the Commitment. Sponsored by the Urban Mass Transportation Administration (UMTA) and the Transportation Research Board. Hosted by the Texas State Department of Highways & Public Transportation. Hyatt Regency, San Antonio, Texas. Contact Vickie Vitek at (515)483-3651.

October 30-31: National Seminar on Asphalt Rubber. Contact Allis Plaza Hotel, 200 W. 12th Street, Kansas City, Missouri.

November 3: Current ANCSA Land Issues Seminar. Sponsored by the IRWA Sourdough Chapter 49. Clarion Hotel, Anchorage, AK. Contact Pat Beckley at (907)266-1668 or Dan Beardsley at (907)266-1621.

November 4: IRWA Course 802, Legal Aspects of Easements. Sponsored by the IRWA Sourdough Chapter 49. Clarion Hotel, Anchorage, AK. Contact Pat Beckley at (907)266-1668 or Dan Beardsley at (907)266-1621.

December 2: Course 402, Introduction to Income Approach and Valuation. Sponsored by the IRWA Arctic Trails Chapter 71. Fairbanks, Alaska. Location to be announced. Contact Sig Strandberg, Coordinator, at (907)474-2467.

* **December (date to be announced): Transportation Software.** Contact Michelle Johnson at (907)474-7733.

* **T2 Course**

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ALASKA TRANSPORTATION

TECHNOLOGY TRANSFER

Transportation Technology Transfer Program
University of Alaska Fairbanks
Fairbanks, Alaska 99775-1760

address correction requested

T2 COMPUTER SURVEY

Name: _____
Agency: _____
Position: _____

Please circle most appropriate answer. Feel free to make additional comments in the margins or the space provided on the back.

1. Do you currently use a personal computer in your job?
   a. daily b. weekly c. occasionally d. rarely e. never

2. What type of PC do you use?
   a. IBM or compatible b. Apple c. Other _____ d. None

3. Do you use a word processing program?
   a. Word Perfect b. Word c. Wordstar d. Displaywrite e. Other _____
   f. None

   Level of expertise: a. Novice b. Intermediate c. Advanced

4. Do you use a spreadsheet program?
   a. Lotus 123 b. Quattro c. SuperCalc d. Other _____ e. None

   Level of expertise: a. Novice b. Intermediate c. Advanced

5. Do you use a database system?
   a. dBASE b. POWERBASE c. rBASE d. FOXBASE e. CLIPPER
   f. Other _____ g. None

   Level of expertise: a. Novice b. Intermediate c. Advanced

6. Do you use specific transportation software in the following areas? (Circle all that apply and write in the actual program name.)

   a. Construction Project/Management Software _____
      (eg. PACE, etc.)
   b. Transportation Planning (eg. TRANPLAN, etc.) _____
   c. Traffic Engineering (eg. AAP, HCS, etc.) _____
   d. Facilities Management (HCPM, PMS, etc.) _____
   e. Other (identify) _____

7. Have you programmed your own or modified existing transportation software?

a. Yes b. No

If yes, please describe the program and its application:

8. The T2 Program will be offering a transportation related computer course in late 1989. Please rank the following computer subject areas from the most desirable (1) to the least desirable (10).

_____ Introduction to microcomputer applications in transportation.
_____ Selecting a personal computer.
_____ Selecting a spreadsheet program.
_____ Selecting a database system.
_____ Using a spreadsheet program for transportation applications.
_____ Using a database system for transportation applications.
_____ Selecting computerized traffic models.
_____ Using computerized traffic models.
_____ Writing user specific transportation software.
_____ Other suggestions:

9. The one day computer course will be given in late November or early December. Please indicate if you would be interested in attending.

a. yes b. no

If yes, which dates would be most convenient for you?

a. late November b. 1st week in December c. 2nd week in December

Please return this survey by October 20, 1989, to:

Alaska Transportation
Technology Transfer Program
233 Duckering Building
Fairbanks, Alaska 99775-0660

Thank you for your help and we hope to see you at this course.

REMARKS:

Number 14, 1989

We have many different kinds of winters across Alaska, but all parts are concerned with icy roads. Rain on ice may be standard in your area, or perhaps you have mainly to look forward to "polished" intersections and hills, but we all need to prepare for the ice season. There is a running debate about the environmental impacts of deicing salts or salt substitutes. As a result, the State of Alaska leans toward primary use of sand and other abrasives.

Sand improves traction immediately. It can be used at all temperatures. Chemicals can't. However, sand has negative impacts, too. It clogs storm water inlets and sewers, and requires expensive clean-up activities for bridge decks and ditches. Sand that is washed downstream can contaminate streams and lakes because it is often treated with salt. Salt-treated sand also accelerates vehicle corrosion.

Some sands are more effective than others. DOT&PF has tested several to determine which work best. They found coal ash has the best skid reduction properties and concrete sand is better than the normally used state maintenance sand. Fractured particles work better than rounded aggregate. This agrees with other research, which also found that very small particles and dirt reduce traction.

Windshield breakage is another major consideration in specifying sand particle size. Tests showed that windshields are damaged by particles as small as 1/4" traveling at 35 mph. Interestingly, rounded particles created more damage than sharp aggregate.

Stockpiled sand is often treated with salt. Fifty to 100 pounds of salt per ton of sand is recommended. This keeps the sand workable and helps anchor the sand on the icy road surface. DOT&PF mixed ethylene glycol into the stockpile to test if it would prevent freezing. They found that 1 gallon/ton of sand would significantly reduce handling problems.

Sometimes deicing chemicals are mixed more heavily with sand. The sand gives immediate traction and the chemicals melt the snow later when the temperature rises. For this to be effective, it is better to prepare the mixture with coarse-graded salt. Individual coarse salt particles will penetrate the snow without carrying along much sand. The sand stays on the surface to provide traction. When salt particles are too fine, they soften the snow, allowing traffic action to mix the sand in and losing the anti-skid effect.

Sand is usually applied only at hazardous locations such as curves, intersections, railroad crossings, and hills. Rates of two to four tons per lane mile are common. It is important to calibrate spreaders to control application rates.

How to Calibrate a Spreader:

* Warm the truck's hydraulic oil to normal operating temperature with the spreader system running.
* Put a partial load of sand on the truck.
* Mark the shaft end of the auger or conveyer.
* Dump sand on the auger.
* Rev the truck engine to operating RPM (approximately 1500 RPM).
* Count and record the number of shaft revolutions per minute at each spreader control setting.
* Collect and weigh sand for one revolution, deducting weight of container.
* Multiply shaft RPM by the amount of sand discharged per revolution to get the discharge rate in pounds per minute.
* Multiply this rate by the minutes it takes to travel one mile at various truck speeds to get the pounds of discharge per mile.
* Example: A truck that takes 3 minutes to travel one mile at 20 mph with 30 shaft revolutions per minute and six pounds of discharge per revolution will spread 540 pounds per mile. (30 rev/min x 6 lbs/rev x 3 min/mi = 540 lbs/mi)
* Make similar calculations for each control setting.

Sand must stay on the surface to be effective. Do not use sand when it will be covered with snow or blown off quickly by traffic.

Experiments have been done with heating sand before spreading it. The tests showed that it will melt part way into the ice and refreeze in place, leaving a gritty, sandpaper-like surface. Stopping distances are often less than half those on bare ice or cold sand treated surfaces. The challenge, though, is to efficiently and economically heat the sand and get it on the road while it's still hot (180 degrees F).

Meanwhile, knowing the properties of the sand or other abrasives can help you maintain safe, usable winter roads efficiently and economically while limiting environmental damage.

Sources: DOT&PF Report FHWA-AK-RD-82-26; DOT&PF Research Notes, March 1984; and Road Business, December 1988.

For More Information

For back issues of our newsletters and notes, or to get on our mailing list, write: Publications, Transportation Technology Transfer Program, University of Alaska Fairbanks, Fairbanks, AK 99775-1760. For more information, you can also call (907) 474-7733.

Surge Suppressors May Save Data

Number 6, 1989

Here's another version of a familiar story: A fellow had been working on a drawing for about 2 1/2 hours when someone decided to use the copy machine. His computer and the copier were on the same circuit. Given the age of the wiring of the old building, the drain on the power supply of both the copier and the computer blew the circuit breaker and all his work vanished. Similar stories about poor quality of power supplies are, unfortunately, common, especially in rural Alaska.

Poor power quality tends to be the most common cause of damage to computers and other office equipment. Power level fluctuations are unhealthy for electronic equipment. Power surges, or spikes, can cause errors in memory chips and scramble data being read from disks. They can even destroy the circuitry.

One type of surge occurs when there is a flunctuation in voltage. For example, a spike occurs when a copier that uses the same circuit as a computer is turned on. Another type is a voltage surge between electric supply lines and ground. The most common example is lightning strikes.

These latter occur infrequently, but they can destroy equipment. Generally, they can be controlled with the use of a surge suppressor. Surge suppressors are inexpensive (roughly $40 to $120, Fairbanks prices) and they clamp the voltage when it reaches a predetermined level above the norm. The cost of a surge suppressor is dependent on the speed it performs clamping, the amount of energy it can dissipate, the number of outlets on a unit, and whether each outlet is separately filtered. Every computer, and other sensitive equipment, should be protected by a surge suppressor.

The next level of power supply protection is a power conditioner or power stabilizer. They protect against both kinds of spikes. Power conditioners will range in price from $100 to $500. The variation in price generally depends on the watts of power drawn by the equipment protected, the number of outlets, and the performace (speed, power dissipation, low voltage protection limits, etc.) of the unit.

Although a power conditioner can provide clean power, it cannot provide constant power. Constant power is provided through an uninterruptable power supply (UPS) unit, a popular item in the Alaskan "bush." A UPS unit automatically switches to a battery power supply when it senses a loss of power and warns the user. The UPS provides the user with a minimum of several minutes of power while the user backs up files and powers down the device. UPS units vary in price from $380 to several thousand dollars. The variation in price is dependent on the unit's performance, duration, and wattage of the backup power.

The level of power protection to use with your system depends on several things, including:

* The expense and sensitivity of the equipment protected.
* The value of the work being produced on the computer and the loss that would be suffered if the work "dissappeared."
* The consistency of power levels within your community, within your own building, and within your power supply circuit.

If the operation of equipment and the data collected are vital, then it is clear that the highest level of protection should be provided. For example, computerized fueling systems must typically provide users with fuel whenever they need it. Any loss of automatic record keeping capabilities, by switching the equipment to manual when the computer has failed, causes a gap in the continuous data file. Therefore, computerized fueling systems are far too important not be protected with the highest level of power protection, a UPS. On the other hand, a common computer used in word processing may not warrant this level of protection.

Now that we've discussed the "comfort" of the computer, see the opposite side of this note for comfort of the computer operator.

Computer comfort section adapted from Technology News, February 1989.

Sitting Comfortably to Avoid Back Strain

If you work in an office, it's a good bet most of your day is spent sitting at your desk, in front of a computer or at a conference table. Before you read on, take a minute to relax in your chair - are you comfortable? If your answer is no, and you're feeling strain in your lower back, chances are you are sitting improperly. Sitting can put three times more pressure on your back than standing. And, if you're sitting wrong, that pressure can be doubled.

First, consider how you're sitting in your chair. Here are some general guidelines for proper seating:

* Make sure your forearms and thighs are parallel to the floor.
* Keep your lower back supported against the back of the chair.
* Sit erect and keep your feet planted flat on the floor.

If you are sitting correctly, you should feel no pressure on your thighs from the front portion of your chair. Improper sitting can restrict circulation to your arms and legs.

If you are sitting properly and still suffer from a nagging back, the problem can be your chair.

Here are some features to look for when shopping for a chair.

* A gas-lift (or pneumatic) adjustment allows you to adjust your chair quicker and easier than manual models.
* A form contoured seat and backrest allow for easy body movement.
* A seat with padding that rests on a flat or slightly concave seat pan provides for better movement than those with saddle-like contour pads.
* A waterfall sloping edge on the front seat is important to prevent cutting off the circulation in your legs.
* A seat that isn't too firm or too soft and is 16 inches by 16 inches or larger will offer the best support.
* A good seat should be parallel to the floor and swivel 360 degrees with no resistance.

If a new chair is no an option, consider the following suggestions for added sitting comfort:

* If your chair height cannot be adjusted, and your legs are not long enough for your feet to remain flat on the floor, add a support platform.
* If your chair does not provide adequate support, add a lumbar support roll or pillow to help prevent back strain.
* If you are seated for a long period of time, be sure to stand and stretch several times a day to alleviate fatigue and back discomfort.

If sitting properly does not cure your back discomfort, you may want to seek medical attention. It's best not to rule out any serious back disorders.

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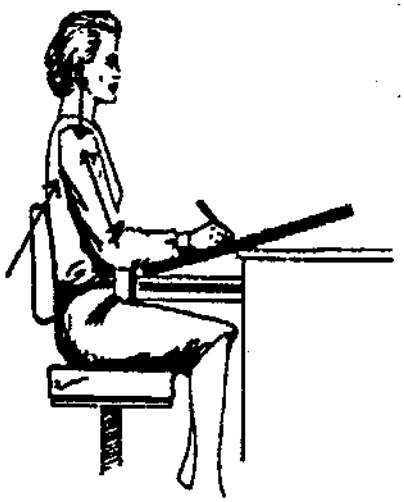

Arrows show proper position of shoulder. Head is tilted slightly forward.

For More Information

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Draft of UMTA's Bus Testing Regulations Issued

Number 2, 1989

Recipients of financial assistance under sections 3, 9, 16(b)(2) or 18 must insure that new model vehicles purchased after September 30 have been tested.

As required by the 1987 Surface Transportation Act, "new model" vehicles acquired with Urban Mass Transportation Administration funds after the end of fiscal year 1989 must be tested at a Bus Testing Facility to be established in Altoona, Pa.

Recipients of financial assistance under sections 3, 9, 16(b)(2) or 18 must insure that the new model vehicles that they purchase after September 30 have been tested.

UMTA recognizes that full implementation of the regulations is unlikely prior to legislative deadline of September 30. It issued a set of "transition period procedures" in mid-August.

The draft regulations take a broad position on vehicles covered, defining "bus" as a "rubber-tired automotive vehicle used for the provision of mass transportation service by or for a recipient." "Mass transportation" is defined as "general or special service to the public on a regular and continuing basis." This definition not only includes vans and other small vehicles, but it also appears to cover conventional sedans and station wagons.

"New model" is defined as a vehicle which has not been used in mass transportation service prior to April 2, 1989 or one which is being produced with a major change in configuration or components.

The proposed regulations define a change in components as anything having "a significant impact on bus performance, reliability, maintainability, structural integrity, safety, fuel economy or noise of the vehicle."

Vehicles both purchased and leased by UMTA recipients must be tested. In addition, UMTA is seeking input on the question of extending the test requirement to new models used by a private operator who is under contract to provide service.

The draft regulations would make the test results the property of the manufacturer and hold them confidential until the manufacturer submits a bid involving a tested vehicle. At that point, the test report becomes public property.

There are a number of important questions on which UMTA seeks guidance from the field.

One question of interest to rural and specialized transit operators is UMTA's suggestion of establishing a production threshold for manufacturers "below which no testing under this regulation would be required." The agency's example is "final stage manufacturing involving vans for use in elderly and handicapped service," which "may only require limited modification to raise the roof or add a wheelchair lift."

The comment period on the draft regulations ended July 24, 1989 and the transition procedures were published within three weeks of that date. For further information, contact Steven A. Barsony at UMTA's Office of Technical Assistance and Safety (202)366-0090 or, for legal issues, Daniel Duff in the General Counsel's Office (202)366-4011.

The proposed regulations were published in the May 25, 1989 Federal Register on pages 22716-22725.

This article obtained from the Community Transportation Reporter (CTR), July 1989, Vol. 7, No.7, page 6. For more information on CTR, call the RTAP hotline at 1-800-527-8279.

Van Tran Service Expanding

Van Tran, which provides transportation for disabled people in Fairbanks, is now providing service on Sundays and to the North Pole area.

The Fairbanks North Star Borough Assembly finance committee extended the contract to Access Alaska and amended it to include the expanded service.

Access Alaska has had a contract with the borough to operate Van Tran since 1986.

The borough owns two vans, but up until now paid to operate only one at a time. The borough will now pay for two vans.

Two lift-equipped vans will be operating Monday through Friday from 7:00am until 7:00pm and two vans on Saturday from 10:00am until 6:00pm. Service will also be available on Sunday from 8:00am until 1:00pm as needed. In addition, the Fairbanks North Star Borough has approved expansion to the North Pole area. Van Tran is presently servicing North Pole on an on-call basis, however a schedule will eventually be implemented on a regular three day visit. Van Tran encourages calls with suggestions at 479-6570.

"For the past two years there has been an average of a 20 percent turn down rate for this service," said Rick Tessandore, Deputy Director of Access Alaska. He said he hopes to double the number of rides Van Tran can provide and reduce the number of people that must be turned down.

The assembly approved the additional service during budget deliberations.

For more information call Van Tran at 479-6570.

Adapted from August 27, 1989 edition of the Fairbanks Daily News-Miner.

For More Information

For back issues of our UMTA RTAP notes, or to get on our mailing list, write: Publications, Transportation Technology Transfer Program, University of Alaska Fairbanks, 233 Duckering Building, Fairbanks, Alaska 99775-0660. For further information contact (907) 474-2475.

NEW PUBLICATIONS AVAILABLE FOR LOAN

Number 17

August 1989
Last=480

____ **Alaska Sign Design Specifications**, ID-475, State of Alaska DOT&PF, April 1983

____ **Analysis of Highway Construction Noise**, ID-479, FHWA, March 1984, 4pp.

____ **Bridge Deck Renewal with Thin-Bonded Concrete Resurfacing**, ID-467, PCA, 1980, 7pp.

____ **Bridge Management Developments:Executive Summary Report**, ID-450, Department of Civil Engineering, NCSU at Raleigh, 7pp.

____ **Bushhammering of Concrete Surfaces**, ID-456, PCA, 1972, 41pp.

____ **Cement-Grout Subsealing and Slabjacking of Concrete Pavements**, ID-469, PCA, 1982, 14pp.

____ **Concrete for Wastewater Treatment Works**, ID-461, PCA, 15pp.

____ **Concrete Pavements for General-Aviation Airports**, ID-465, PCA, 1977, 7pp.

____ **Concrete Streets:Typical Pavements Sections and Jointing Details**, ID-468, PCA, 1980, 4pp.

____ **Developing Expert Systems**, ID-474, FHWA, December 1988, 27pp.

____ **Effect of Fly Ash on Some of the Physical Properties of Concrete**, ID-449, Portland Cement Association, 43pp.

____ **Effects of Substances on Concrete and Guide to Protective Treatment**, ID-473, PCA, 1986, 21pp.

____ **Guidance Material for the Preparation of Environmental Documents**, ID-478, FHWA, February 1982, 33pp.

____ **Guide Specifications for Concrete Curbs and Combined Curbs and Gutters**, ID-458, PCA, 2pp.

____ **Highway Drainage Guidelines**, ID-451, AASHTO, 247pp.

____ **Improving Operational Safety on Local Roads and Streets**, ID-452, FHWA-RT-88-039, 46pp.

____ **Improving Operational Safety on Local Roads and Streets**, ID-476, FHWA-RT-88-039, different year, 46pp.

____ **Institute for Transportation Research and Education, Annual Report 1979-80**, ID-480, University of North Carolina, 65pp.

____ **Joint Design for Concrete Highway and Street Pavements**, ID-457, PCA, 1975, 13pp.

____ **Lean concrete (Econocrete) Base for Pavements:Current Practices**, ID-466, PCA, 1980, 10pp.

____ **Maintenance of Joints and Cracks in Concrete Pavement**, ID-462, PCA, 1976, 10pp.

____ **Patching Concrete Pavement**, ID-463, PCA, 1976, 15pp.

____ **Recycling Failed Flexible Pavements with Cement**, ID-464, PCA, 1976, 4pp.

____ **Report of Field Review-Highway Traffic Noise Impact Identification and Miti**, ID-477, FHWA, June 1982, 25pp.

____ **Revision to the Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic** Signals, ID-455, Highway Signs, Luminaries and Traffic Signals, 1985

____ **Scale-Resistant Concrete Pavements**, ID-459, PCA, 2pp.

____ **Suggested Specifications for Concrete Parking Areas**, ID-470, PCA, 2pp.

____ **Subgrade and Subbases for Concrete Pavements**, ID-471, PCA, 1971, 21pp.

____ **Suggested Specifications for Construction of Concrete Streets**, ID-460, PCA, 7pp.

____ **Suggested Specifications for Soil-Cement Base Course**, ID-472, PCA, 4pp.

____ **Techniques for Reducing Construction and Maintenance Cost**, ID-453, FHWA, April 1987, 180pp.

____ **Transportation Re-construction Manual**, ID-454, State of Alaska, DOT and Public Safety, 60pp

PUBLICATIONS PERTAINING TO NEWSLETTER ARTICLES

____ **Highway Snow and Ice Control, State-of-the-Art**, ID-350, Swedish Road and Traffic Research Institute, September 1985

____ **Practical Guidelines for Minimizing Tort Liability**, ID-343, TRB SYN 106, December 1983, 40pp.

____ **Snow and Ice Control Operations**, ID-142, FHWA-TS-77-208, 1977, 37pp.

These publications may be borrowed for two weeks. If you wish to receive a copy of any of the above publications to keep, please contact Susan Earp at the Alaska Technology Transfer Program at (907)474-7733 to see if it can be obtained or if duplication is possible. Please print your name and address below, and mail to:

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University of Alaska Fairbanks
233 Duckering Building
Fairbanks, AK 99775-0660

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NEW VIDEOS AVAILABLE FOR LOAN

Number 18, 1989

August 1989
Last=103

____ **Frost Effects Research Facility (FERF) - Technical**, ID-103, USACRREL, 6min.

____ **Inlay Patching Using A Large Coldplaner**, ID-99

____ **Inlay Patching Using A Small Coldplaner**, ID-100

____ **Introduction to Frost Effects of Research Facility (FERF)**, ID-102, USACRREL, RT, 14min.

____ **Mailboxes May Be Hazardous To Your Health**, ID-101, Texas State Department of Highways and Public Transportation, 14min.

____ **Ramp Metering:Signal For Success**, ID-98, FHWA-IP-89-015, Explains the principles and benefits of ramp metering by showing examples of successful projects in LA, Denver, and Minneapolis. The videotape also explains urban traffic congestion and addresses several key issues such as safety, efficiency, equity and public relations. Intended audience is public officials and citizens. 17min.

VIDEOS PERTAINING TO NEWSLETTER ARTICLES

____ **Driver Daily Maintenance of Light Vehicles**, ID-15, FHWA/IRF, 17min.

____ **Motor Grader**, ID-38, 2 parts, 33min. Part I discusses start up and daily maintenance, and part II discusses basic maneuvering and shut down.

____ **Preventative Maintenance - An Overview**, ID-61, Utah DOT, 13min. Introduces the Utah DOT series of maintenance training tapes, and discusses the importance of proper equipment maintenance.

____ **Snow and Ice Control**, ID-67, 2 parts, Utah DOT, 27min. Part I discusses snowplow equipment, supplies, routing, and types of service as used by the Utah DOT. Part II discusses types of snow, temperature, plowing procedures, and clean up.

____ **Snowplows**, ID-68, 2 parts, Utah DOT, 20min. Part 1 explains the mounting, daily checking and storing of straight-blade snowplows mounted on trucks. Part 2 covers the operation of these types of plows, including safe speeds, direction of travel, positioning, plowing near obstructions, and the hazards of water ponding.

____ **Tort Liability**, ID-73, Wisconsin DPT, 47min. Presentation of current trends in liability and how to protect employees. Participants develop an awareness of the types of exposure and prevention.

____ **White Gold**, ID-81, APWA and the University of New Hampshire, 25min. This documentary discusses the numerous types of snow removal equipment and procedures that are used in the northeast region of the nation. Advantages and disadvantages of each type of equipment are discussed.

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