

# Alaskan Transportation

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# UAF AISES honored

For the third time in three years, the University of Alaska Fairbanks chapter of the American Indian Science and Engineering Society (AISES) achieved national recognition at the national AISES conference. The chapter received the Stelvio J. Zanin Distinguished Chapter award as the most outstanding chapter of 1996 in Salt Lake City in November.



Front (l-r): Sasha Atuk, Mark Blair, Kim Ivie (holding award); back (l-r): Jason Huffman, Carleen John, Shay Huntington McEwen, Sheri Schuyler (UAF School of Fisheries and Ocean Science), Patience Mercurief, Stefan Rearden, Mike Orr.

## ISTEA provisions have many effects on Alaska's roads

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 significantly impacted the Alaska Federal Highway Program. The legislation made numerous changes to the Federal Highway Administration (FHWA) highway funding program. Those most affecting Alaska have taken years to evolve. The four most significant changes are the following:

Alaska is the only state that can spend federal highway funds on any public road. The other states as restricted to highways not functionally classified as a local road or rural minor collector. This change enables Alaska to spend federal funds on village

roads, city and urban roads, including roads to airports, harbors, sanitation facilities and within community subdivisions and local roads. This change has diverted a significant percentage of highway funds from the traditional highway system to local roads.

# ISTEA

The second change is the funding of ISTEA dedicated for enhancement projects. In Alaska, this worked out to be \$10-11 million a year. Enhancement projects include bike paths, pedestrian facilities, trail heads, historic restoration of transportation facilities and other items. In 1995, Governor Tony Knowles established the TRAAK (Trails and Recreational Access for Alaska)

# Drivers respond to photo radar program

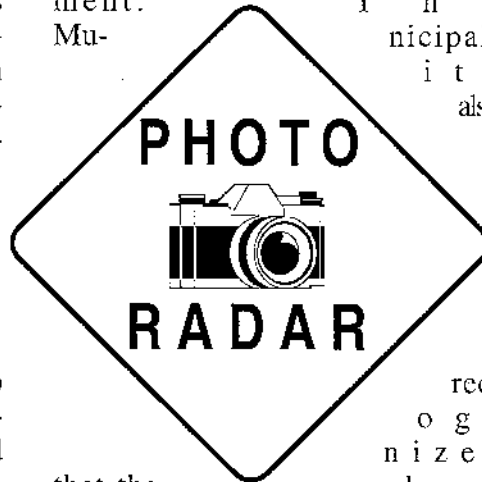
Anyone who lives in or has visited Anchorage, Alaska since March 1996, has probably heard of the photo radar.

The photo radar program was created by the Anchorage Assembly in 1993, in response to citizen concerns for speeding. The Assembly passed an ordinance that allowed photo radar speed enforcement in all school zones. The program has been in place since March 1996, and operates Monday through Friday, 7 a.m. to 7 p.m.

The original request for photo radar came from several Community Councils that wanted a method to control vehicle speeds in residential areas. Most residents understood that due to the expanded police coverage area, increased

crime and reductions in the police force, speed enforcement was not a top priority to the Anchorage Police Department.

The Municipality also



that the cause of accidents in Anchorage is vehicles driving at unsafe speeds.

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Statistical analysis of police accident reports show that 25 percent of all accidents are caused by vehicles driving too fast. The attempts to implement the Assembly mandated Photo Radar Program were met with a dilemma. The Municipality of Anchorage did not want to impact current police deployment. Municipal Traffic Engineering was challenged with developing the program without increasing the number of municipal employees.

The Municipality of Anchorage decided to operate the program by awarding a turn-key contract. American Traffic System (ATS) of Phoenix, Arizona was awarded the contract.

When ATS implemented the photo radar program in March 1996, 40 percent of the vehicles passing the radar units were exceeding the posted speed limit. The program was developed to allow a 4 mile per hour grace in flashing school zones, and 9 miles per hour in all other school zones. Within five days of implementing the program, the number of vehicles exceeding the posted speed limit was reduced to 19 percent, with three percent receiving citations for speeding. The reduction in vehicles exceeding the posted speed limit has remained constant since the original decline. The municipality of Anchorage has issued approximately 16,000 speeding citations in 1996 using the photo radar technology.

The photo radar program is being challenged in court based on the technology and issuance of citations other than by police officers. The Municipality of Anchorage has appealed the State Magistrate's ruling against the program to the State Superior Court and expects a ruling in January 1997. Until the court rules, the photo radar systems are still being used to enforce speed limits in Anchorage school zones.

## February activities planned to celebrate Engineers Week

Engineers across Alaska and the U.S. are preparing for Engineers Week 1997. This year's theme "Engineers Make a World of Difference" emphasizes the impact of engineering on our quality of life. A variety of activities are planned in Anchorage, Juneau, and Fairbanks that aim to increase awareness and appreciation of the engineering profession. These activities include student competitions that require applying science and technology, recognition of engineering achievers, banquets, and public displays.

National Engineers Week was founded in 1951 by the National Society of Professional Engineers to increase the public awareness of engineers' contributions to our quality of life. It is

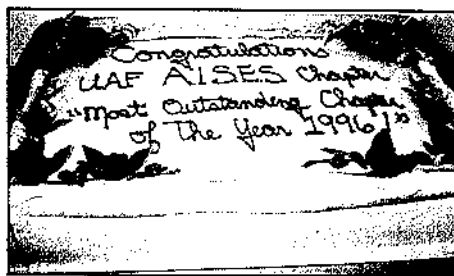
always celebrated at the time of George Washington's birthday, who was a military engineer and land surveyor. Washington's technical skill earned him the title as first U.S. engineer.

For more information about your local schedule or to volunteer your support contact Richard Reich of the American Indian Science and Engineering Society (AISES) at 561-6605 in Anchorage, Clark Milne of the Alaska Society of Professional Engineers (ASPE) at 456-7892 in Fairbanks, or Mike Lukshin of the American Society of Civil Engineers (ASCE) at 465-8940 in Juneau. We also post information on the ASPE Anchorage Homepage at <http://www.alaska.net/~aspe>.

-by Mark R. Musial

# AISES

Previous awards include the 1994 Stelvio J. Zanin Distinguished Chapter Award and runner-up for the award in 1995.



Celebration cake at AISES chapter meeting.

Ten UAF students attended the November 13-17 conference. The UAF delegates were: Sasha Atuk of Nome, a junior in mechanical engineering; Mark Blair of Kotzebue, a graduate student in anthropology; John Henry of Stebbins, a senior in electrical engineering; Jason Huffman of Huslia, a junior in restore the environment, publishing tools for language preservation, writing grants, to name but a few of the topics.

Huntington McEwen noted, "This [the conference] was a valuable experience. It was great meeting people who were interested in the same areas as myself. The conference provided a positive, motivating, fun, and accepting environment. It was also a place to

meet great people and to make contacts for future employment. I would highly recommend the conference to anyone."

Fairbanks students interviewed with the likes of Hewlett Packard, Alyeska, Shell, 3M, IBM, U.S. West, Lucent Technologies, and St. Paul, Alaska. Hewlett Packard brought Atuk and Henry to Colorado over Christmas Break so the students could interview with company executives.

Atuk commented, "Hewlett Packard provided me with one of the best learning and real world experiences dealing with employment."

Henry received a job offer from Lucent Technologies, saying "I found the 1996 National AISES Conference to be a worthwhile endeavor. Establishing contacts with some of the successful and dynamic companies in the world during the

career fair was one of my more important decisions that I've made in my life-time. Through the duration of the conference I've been able to listen in on several important sessions that made me perceive the world in a different light. I'd highly recommend this opportunity to any student who's interested about the many facets within the corporate and career life-style."

The 1997 annual conference is November 20-23 in Houston, Texas.



Above: Mark Blair and Patience Merculief at Salt Lake City Airport.



Left (l-r): Shay Huntington McEwen (trying to study!), Kathy Mayo (Anchorage, Alaska), Sasha Atuk.

## What exactly is an LTAP?

Most people that receive this newsletter are probably familiar with the Alaska T2 Center and have a pretty good idea about what we do. But, how many readers actually know what LTAP means? The FHWA office of Technology Applications, Technology Management Division includes the State and local programs branch which administers the Local Technical Assistance Program (LTAP).

There are LTAP centers in all 50 states and Puerto Rico, plus six centers serving Native American Tribal governments. All technology transfer centers fall under LTAP. Most centers are called "T-square" centers (or some variation of that name). Some are known as "LTAP Centers". A few have some other locally recognizable names such as the "Cornell Local Roads Program" at Cornell University in New York.

The FHWA provides LTAP funds to each state transportation agency. The agencies then match the funds to provide training and technical assistance to local transportation agencies. In Alaska, the Department of Transportation and Public Facilities, Engineering & Operations division administers the LTAP program.

Adapted with permission from "Interchange" Fall 1996.

# ISTEA

*Continued from page 1*  
which expanded the program to \$20 million per year.

Many projects are in design or have been completed including Creamer's Field, Nenana Gold Spike Park, Nome Solomon Waysides, Lavalle Young Wheelhouse Restoration and Abandoned Vehicle Removal Programs.

The third major impact upon the program is that the FHWA is allowing the Department of Transportation and Public Facilities to use federal funds on all public roads in Alaska for crack sealing, road leveling and resurfacing, drainage improvements and bridge repair. This allows the Department to make repairs to road facilities to extend their life.

Perhaps the most significant changes in ISTEA affecting the federal highway program is the required public involvement in the planning process. This has required the department to seek input from local communities and local governments to develop the Statewide Transportation Improvement Program (STIP). ISTEA required the department to develop a long range transpor-

tation plan which includes a bike plan and a public involvement process. Many special interest groups have been involved and have provided their views to the department. The department has received and continues to receive comments on development of the STIP and long range plan.

These changes have considerably expanded the eligibility for the uses of federal highway funds. Unfortunately, the ISTEA program did not significantly increase highway funding in Alaska. There has been a squeeze on the traditional highway program because of the flexibility of ISTEA. The governor's transportation initiative has directed that the majority of the federal funds, \$120 million out of the annual \$220 million total, be used on the National Highway System, which consists of the major highways in Alaska and a major portion of the Alaska Marine Highway system.

The ISTEA legislation is up for renewal in 1997. Changes are expected, but probably will not be significant.

- by Martin Ott

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

## ALASKA TRANSPORTATION TECHNOLOGY TRANSFER

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*Department of Transportation and Public Facilities*

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*Fairbanks, AK 99709-5399*

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# BST used on Yukon Territory rural roads

## Bituminous Surface Treatment offers an economic alternative

Public Works Canada and the Government of the Yukon (YTG) have been utilizing Bituminous Surface Treatment (BST) in the Yukon since the early 1980's as an economical alternative to hot-mix pavement for most rural roads. A majority of this work has been undertaken by the Highway Maintenance Branch of YTG. The reconstruction of the Haines Road and the Alaska Highway, as part of the Shakwak Project has utilized construction contracts to perform BST on the reconstructed portions of much of this work.

The development of the construction specification has undergone significant changes during the past years, and has recently undergone a major revision. Until the most recent revision, the specification had been a procedural based specification, detailing exactly what methods and products, based on past experience, could be utilized in order to produce an acceptable result. The products, aggregates and emulsified asphalt were, tested for adherence to specification, and if within acceptable standards, were incorporated within the work and paid for. Often, because of time lags in testing materials, the emulsified asphalt was incorporated within the work prior to completion of the testing. In 1988 the specification was modified, recognizing the need to deal with sub-standard materials utilized, to include a payment reduction for material which did not meet specification. The payment reduction was based on an assumption that the product would provide a reduced life, and the reduced payment was reasonable dependent on the seriousness of the deviation from the specification.

In 1995, three projects demonstrated serious problems with the procedural specification we had been using. On two of the projects, major failures



1995 Bituminous Surface Treatment failures at kilometer 1878 of the Alaska Highway. Pothole strings continued to develop for several weeks following application of BST. Potholing locations could not be associated with a single type of failure.

in the form of potholing occurred. The two projects, were completed by separate contractors utilizing the same emulsified asphalt supplier and different granular sources. In addition, a YTG Maintenance BST operation utilizing the same supplier, experienced similar problems to the construction contractors. The failures occurred during the same time period, and the testing of the materials indicated no deviation from specification with either aggregates nor emulsion, the failures occurred for an extended period (in excess of four weeks) of time after initial application. The contractors initially attributed the failures to heavy rains, which occurred on the fresh BST, however this was not consistent with all the failures. The projects were successfully repaired by patching potholes and overlaying the travelled lanes with another BST. The common factors to the various BST works, were the emulsion supplier and the weather. Although the emulsified asphalt complied with all standard test procedures, it did display some uncharacteristic properties in some samples. The effects of the rains on the BST were impossible to ascertain, as the failures occurred on BST which was in the initial stages of curing, as

well those which should have cured; failures also did not occur in other areas even though the BST had not cured. Adjacent mats showed different extents of failure even though laid within hours of each other, and subjected to the same post construction elements.

The third project involved construction where much of the emulsified asphalt supplied failed the specification requirements to varying degrees. The deviation from specification was in an emulsion characteristic restricted to the application of the material (emulsion viscosity) and was not anticipated to have any long term effects. Although the product should have had a payment reduction applied for failure to meet specification, in anticipation of reduced service life, the BST surface has performed very well and no performance problems are anticipated for the expected life of the surface.

These two scenarios encountered, identified shortfalls in the use of a procedural specification. In particular, the fact that it was possible to follow the specified procedure and have a failure, or alter-

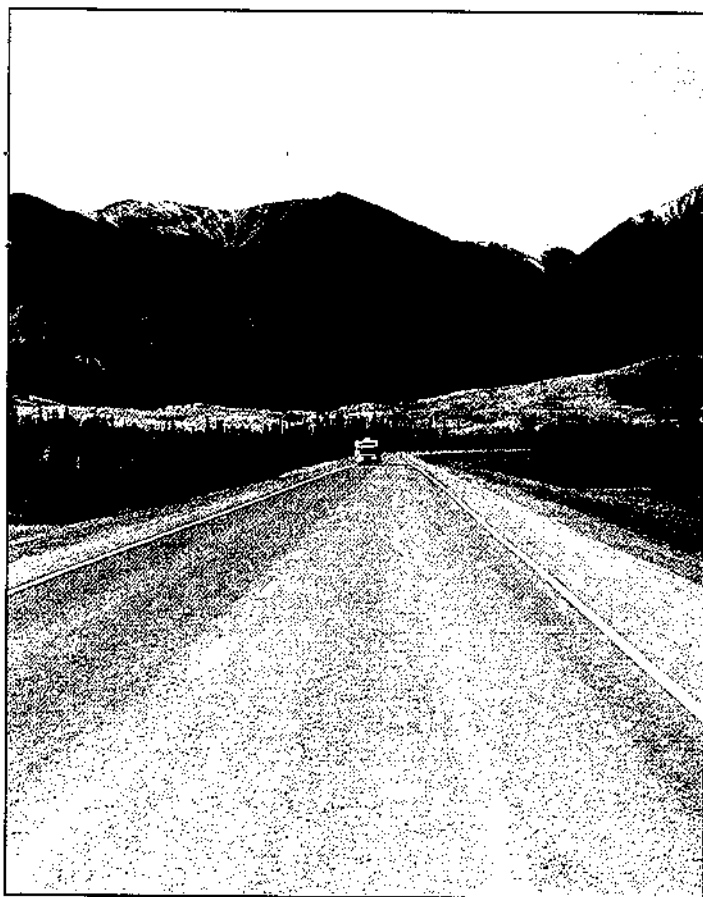
nately to vary from the specification and still achieve an excellent result. Discussions with the industry provided several opinions regarding the explanation of the failures, along with several recommendations, although none were definitive. In general, the key appeared to be to give the contractor greater control and responsibility for the procedures used. In order to allow this, acceptance criteria, had to be defined within the specification.

The YTG has for the past eight years systematically evaluated all the BST surfaced roads in the Yukon as part of an ongoing Road Management System. This study has identified the types and severity of BST failures, and how they reflect on the life expectancy of the surface. From this study, those failures which could be associated with new construction for example, loss of aggregate, potholes, flushing/bleeding and total failure, were identified.

As part of the specification, three interrelated tables were developed; Surface Defect, Density of Surface Defect, and a required Surface Repair. These tables define a matrix for the evaluation of a completed BST using descriptive terms and measurable characteristics where possible. So for example, a few potholes in a 500 m. length of BST may simply require a pre-mix repair, several potholes in a shorter length would require an additional BST overlay after patching. In order to recognize that defects take time to develop, but generally begin to develop shortly after the surface is laid; the evaluation of the completed work was done within a 30 day period of application. The intent of the revised specification was to deal with potentially catastrophic failures, as had occurred in the 1995 contracts, and the 30 day period was felt to allow sufficient time to give indication of future problems. Payment to the contractor was based on 50% at the time of application, and 50% at the end of the 30 day period, subject to satisfactory performance of BST and repairs undertaken.

YTG has only tendered a single contract for 43 kilometers of BST on the basis of this specification, and it has been promising. The contract did not experience any significant surface defects, or any significant changes in operations by the contractor, so a thorough evaluation of the new specification is not possible. The major objectives appear to have been achieved, in that, the specification has not affected contractor bidding, and it has added to the contractor's understanding and responsibilities to ensure a satisfactory product.

-by Paul Knysh, P.Eng.

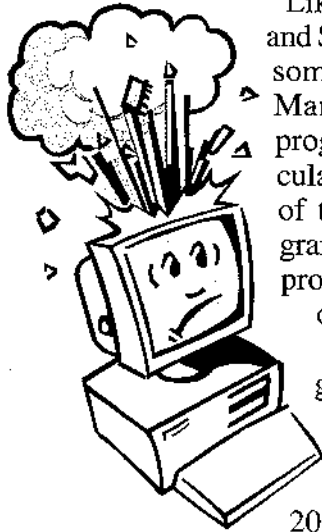


Repaired BST at Km 1873 of the Alaska Highway, after pothole patching and overlay by second application of BST.

### ***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.

# Year 2000 could mean problems for many agencies' computer systems



Like the children's game, "Hide and Seek," the year 2000 may have some hidden surprises for you. Many computers and software programs will not be able to calculate dates accurately at the turn of the century. And many programs that work just fine now will produce inaccurate information or cease to operate.

Why? Because these programs were developed with two digit dates (e.g., 96 for 1996) and will not be able to recognize 00 for the year 2000. They will likely interpret

those numbers as the year 1900.

What this means to you is that programs that are date sensitive, and especially those that are used for

long-range planning such as budgeting programs that calculate interest, inventory programs, etc., will cease to function correctly. Also, date stamps - the dates found next to each file name in a directory to indicate when it was created or last updated - will not be correct.

It may seem like three years is a long time to wait, but if you are not ready for the change, January 2, 2000, may be best remembered for some very unpleasant surprises found on your computing systems.

## What you need to do now

- Make a list of all the different computer software programs you use, including DOS or Windows.
- Contact the companies that manufacture those programs. Ask them if their products are 2000-ready. If the products are more than a few years old, they are probably not. Many software companies are

## Software piracy: is it happening in your office?

The Business Software Alliance has estimated that software piracy costs software developers approximately \$12 billion annually in lost revenue. In the U.S., approximately one-third of all software is pirated. Software piracy is the unauthorized duplication of software and is a federal offense.

Should your agency be concerned? Many businesses don't realize that any disgruntled employee can call the Software Publisher's Association hotline and report software theft. Even if your agency has not illegally duplicated software, you could still be responsible for employees who have duplicated software. Some states are contemplating laws that would assess criminal penalties against firms for illegal acts committed with their systems, if it could be proven that the firm did not take enough steps to safeguard systems.

Check to see if your agency has committed software piracy:

- Have you bought software for one computer and

installed it on two or more computers? This is a felony.

- Have you transferred a computer from one person to another with software intact and also loaded the same software again onto the computer that replaced it? This is a felony.

- Have employees brought in their own licensed software and duplicated it in the office without purchasing software agreements? This is a felony.

To protect your office against software piracy, software should be stored in a locked area. When budgeting, funds should be allocated to buy software in the appropriate quantity to meet your needs. When you purchase software, read the software agreement that comes with the package. If you need additional copies of a program, often you can just purchase additional licenses from the software vendor. Finally, random audits should be conducted to check employee's hard drives.

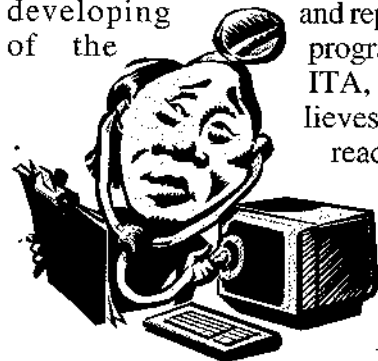
*Reprinted with permission from, "Kansas Trans Reporter," July 1996.*

planning to release year 2000 upgrades; ask about the availability of an upgrade for the particular version that you have.

- Determine who will change your programs that won't have upgrades available. Possibilities include yourself (if you developed your own program), an in-house computer expert or a hired consultant. Local highway agencies should inquire about how their city or county administration is planning to address the problem. Perhaps one consultant could be hired to change several department's programs within a single county or city.
- One option is to switch to new software that is 2000-ready. If you have been considering this anyway, now would be a good time to do that.

## One Agency's Plan

Over the past eight years, the Kansas Department of Transportation (KDOT) has pursued an Information Technology Architecture (ITA) Program of upgrading, developing and replacing programs. Because of the program replacements under the ITA, KDOT management believes that they are year 2000 ready. KDOT is also arranging for an outside, independent audit of their computer systems as a double-check of their readiness.



KDOT also buys some of its computer services from the state's Division of Information Systems and Communications (DISC). DISC is working with several major state agencies to provide a consulting services contract for Year 2000 readiness.

Bill Kritikos, of KDOT's Bureau of Computing Services Strategic Planning Group, says that the amount of work the state must do to change computer program code is unknown.

"The State is still figuring out how to handle this," Kritikos says. "We know there could be an elephant out there, but we don't know how big it is - all we can see right now is the tail."

Kritikos stresses that the anticipated problems are severe for large industry and federal and state government, due to the size and scope of their computer systems. "It's also important that local agencies be aware of potential problems and to make a plan for addressing them before Jan. 1, 2000."

As part of his work on this project, Kritikos has been researching the topic, including on the Internet. A net search on "Year 2000" brings up many sites. But Kritikos cautions: "Be aware that there's a lot of hype out there. Many computer consultants are advertising their services, and most of the information is aimed at large corporations." Still, the internet is a good source for up-to-date information on the topic and how it is being addressed. A useful site is the Defense Information Systems Agency (DISA) home page: <http://cfcse.ncr.disa.mil.jexhome.jieojex2.html>.

## Things to Look For

In a recent article in KDOT's Translines internal newsletter, Kritikos outlines the following five points that should be checked in computer programs.

- 1) If your system accepts 00 as a valid date, make sure that is understood by the program as 2000, not 1900. They are not interchangeable. That is because 2000 is a leap year and 1900 was not, so there is one more day in the 21st century than in the 20th. The days of the week are also not the same. The 1900s began on a Monday; the 2000s will begin on a Saturday. Therefore, if internal calculations and calendars are to be correct, they must be based on the year 2000.
- 2) The reason that the year 2000 is a leap year is because it's evenly divisible by 400. Many programs omit this part of the leap year calculation rule. Try entering the date 02/29/00 into your programs to see if it is a valid date.
- 3) Some programs may divide by the last two digits of the date to help form passwords and for other special functions. These programs fail because division by zero is not allowed.
- 4) Some years, such as 1999, 99 or 00 may be used as flags by some programs to cause aborts or special actions. These functions will have to be rewritten.
- 5) A two-digit date representing a year in this century cannot be used in calculations with a date representing a year in the next century - unless a constant of 100 is added or subtracted as required. These dates should be converted to four digits.

*Adapted with permission from "KUTC Newsletter," Summer 1996.*

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DATE	EVENT	SPONSOR/CONTACT	LOCATION
March 10-14	SDIC & CPO Class	Jim Bennett @ (907) 451-5322	Anchorage, Alaska Sheraton Anchorage Hotel
March 16-19	ISSA 35th Annual Conference & 4th Annual World Congress	Pamela Romaine @ (202) 857-1160	Paris, France
March 17-21	NHI Course #13442 Materials Control & Acceptance	Jim Bennett @ (907) 451-5322	Anchorage, Alaska
April 27-30	North American Snow Conference	APWA - 2345 Grand Blvd. Suite 500, Kansas City, MO 64108-2625	Kansas City, Missouri Hyatt Regency Crown Center
May 4-10	ISCORD 1997	Organizing Committee Chairman @ (907) 561-3280	Captain Cook Hotel Anchorage, Alaska
May 13-14	Ecosystems-based Approaches to Planning & Development	Alaska Division of Forestry @ (907) 269-8465	Girdwood, Alaska Alyeska Prince Hotel
May 25-30	7th International Offshore & Polar Engineering Conference	ISOPE '97 @ (303) 273-3673	Honolulu, Hawaii
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

## 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. 71	Monthly, 3rd Thurs., noon** Monthly, 2nd Thurs., noon# Monthly, 1st Wed., noon	West Coast Internat'l Inn **except July & Dec. Last Frontier Club #except 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

# Days are too short for Ackerly's agenda

For Tom Ackerly, 'the borough roads guy,' there just aren't enough hours in the day.

Ackerly, Kenai Peninsula Borough roads director, said he hates to sleep, because there is just so much to do. "If it wasn't a requirement I wouldn't do it."

With 620 miles of roads, a Capital Improvements budget of about \$2 million and a staff of himself plus four, Ackerly's job keeps him fairly busy in itself. He said he looks at his job as a manager of private contracts doing the public's business of roads.

"I believe the road service areas should seek innovative, cost-effective and cooperative arrangements to get 'the most bang for the public's buck,'" Ackerly said. "I am concerned with the quality of the product we end up with."

The Kenai Peninsula Borough also has geographic diversity, he said, which poses some interesting maintenance situations. "We have coastal climate areas, interior areas and a wide variety and types of roads."

Ackerly's dabbled a little bit in everything before he arrived at the position he is in now. He was born and grew up near Tampa, Florida with his parents and younger sister, Judy. After graduating from high school in 1959, he attended the University of Tampa where he earned bachelor's degree in history and English in the span of three and a half years. He also took three years of pre-engineering classes during the same time period.

In the Fall of 1963, Ackerly began his teaching career, first at East Bay High School, and then four years later, at Kenai High. While he was teaching, he earned a master's degree from the University of Southern Mississippi, and took many other college courses.

After 20 years of teaching, Ackerly retired, deciding it was time to explore other possibilities.

A year of law school at the University of Puget

Sound Law School was enough to convince Ackerly that being a lawyer wasn't for him, so he took a former student up on an offer to come work for him as a legislative aid. He said the responsibilities of the job were far ranging, and usually very interesting.

"The legislative experience was such a cross-section of so many parts of life in Alaska that I believe it prepared me to understand, appreciate and deal with almost any situation," Ackerly said.

Though his jobs have been important in his life, Ackerly said one of the most important events occurred in the spring of 1991, when he married his wife, Bunny, and gained a daughter and granddaughter. Ackerly said he and Bunny were high school sweethearts, and were reunited through a class reunion.

Many of Ackerly's spare time activities lie on the cerebral end of the spectrum. He said he likes to play games, especially those that require a great

deal of strategizing. He also enjoys reading - just about anything he can get his hands on. He said he subscribes to three newspapers and likes to read non-fiction material, even some publications that others might find a bit dry.

"I love to read technical data relating to this job," he said. "People think, 'God, you're crazy,'"

Ackerly said he also enjoys going places, whether it be on the Internet or physically. He and his wife spend much time as possible traveling around the U.S. He said they hope to go international with a trip to Australia sometime in the near future.

Ackerly is also devotes much of whatever time he has left over to different community organizations. He said he particularly enjoys organizing fund-raisers for groups like the Boys and Girls Club, the local library and the food bank.

-by Marmian Grimes



## For More Information

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# FHWA conducts national highway survey

In conjunction with the National Quality Initiative (NQI), the Federal Highway Administration (FHWA) sponsored a nationwide survey of highway users in 1995. The survey's purpose was to assess public satisfaction with the highway system, identify the public's priorities for highway improvements and provide a baseline against which to measure improvement.

The survey was designed to measure the characteristics of the seven following areas:

- Bridge Conditions
- Maintenance Response Time
- Pavement Conditions
- Safety
- Traffic Amenities
- Traffic Flow
- Visual Appeal

The results of the survey clearly indicate the public's priorities and support for highway improvements and should help local, state and federal agencies focus their resources to address the public's concerns.

Selected responses and summaries of the national highway survey are given below:

- 49 percent of respondents indicated that they are

satisfied with the highway system, 34 percent were neutral, and 16 percent were dissatisfied.

- The respondents indicated the highest level of satisfaction with the visual appeal of our highways (62 percent), the lowest level of satisfaction is with traffic flow (48 percent).

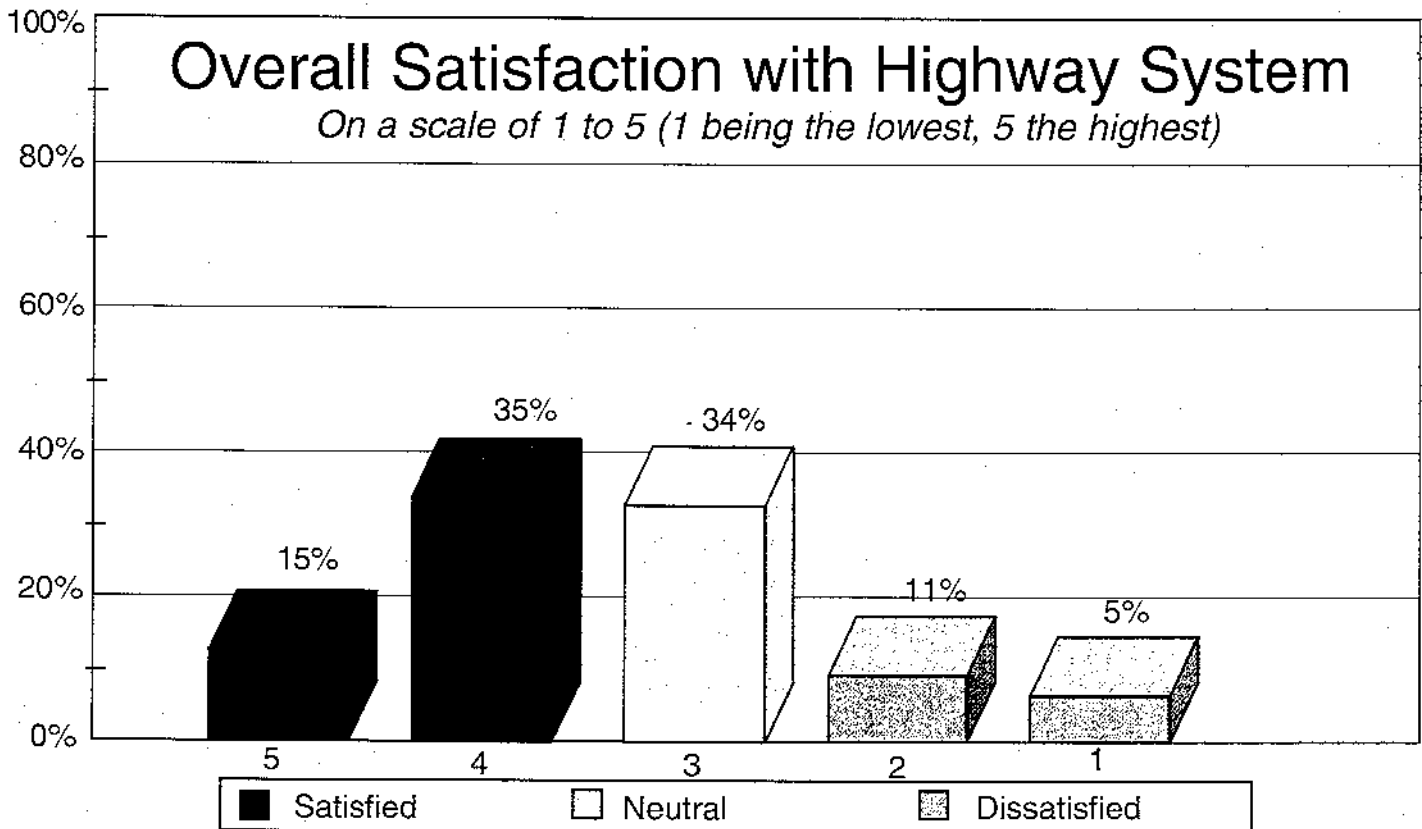
- Of the safety items identified, the respondents indicated the highest level of satisfaction with lane width (68 percent satisfied), while pavements in wet weather had the lowest level of satisfaction (46 percent).

- The respondents indicated the following prioritization, highest to lowest, of areas that public agencies should concentrate on improving:

- 1) Safety
- 2) Pavement Conditions
- 3) Traffic Flow
- 4) Maintenance Response time
- 5) Bridge Conditions
- 6) Travel Amenities
- 7) Visual Appearance

- 64 percent of the respondents indicated they are willing to pay more in fuel taxes to improve the nation's highways.

-by Drew Sielbach



# Remove obstacles to benchmarking

Benchmarking: What is it? Do we need it? Where do we begin?

In typical layman terms, benchmarking is placing a mark on a permanent object to indicate elevation and to serve as a reference. In the world of management it generally means a standard by which others judge themselves.

Within this context, benchmarking for public works departments involves finding a reference or "best practice" and measuring an organization against it.

According to Cathy Hill, American Productivity & Quality Center, Houston, Texas, benchmarking is the process of identifying, understanding and adapting (not adopting) the best practices from similar organizations anywhere in the world in order to help one's own organization improve its performance.

Obstacles to benchmarking need to be overcome

Although seemingly advantageous, many organizations are reluctant to benchmark, she told attendees at the Congress session entitled "What is Benchmarking?"

Reactions to benchmarking include:

- It won't work here;
- We're different;
- We're mixing apples and oranges
- We're too busy; or
- We won't give away our secrets.

To overcome these, she urged attendees to consider having available the best accounting process in the world; the best payroll process; the best solid waste management system; the best traffic control system; the best emergency management system; and the best public works management practices. She asked, "Then, would you adapt it?"

This, she explained, is the benchmarking concept - adapting into your organization those best practices and processes used by successful organizations without re-inventing the wheel. "Being humble enough to admit that someone else is better at something" is the beginning to implementing good benchmarking.

Some of these best practices and processes may very well be within your own department, she said, yet most will be from the outside.

Implementing means planning, collecting data, analyzing data, adapting and improving processes.

Implementing benchmarking does require and understanding of the process, she cautioned. It consists of planning, collecting data, analyzing data and adapting and improving upon new processes.

Benchmarking requires identification of the system for change, as well as determining what organization has the best system in place. It requires a thorough un-

derstanding and analysis of the processes of both your system and the best system; and, it requires adapting the new system, as well as managing the change process.

"It is a long, legal and ethical process," she said. "It is not just copying or catching up."

If properly done and implemented, benchmarking can assist public works organizations in maximizing and managing constrained resources. Adapting the best process can increase the effectiveness and productivity of your system and your organization and will undoubtedly result in more satisfied customers and a better public works image.

-by Carol Everett

Reprinted with permission from the "APWA Reporter," October 1996

## BENCHMARKING

Q & A

What is benchmarking and what is the best way to go about setting up a benchmarking program?

Benchmarking may be the least understood and consequently the most misapplied management toll of the decade. Pressures to improve the delivery of goods and services in business and government have produced grim times from board rooms and council chambers to shop floors and job sites.

Defining organizational measures of performance and productivity in order to produce improvements has become a consuming interest of managers, supervisors and workers.

When properly implemented, benchmarking programs result in directing a firm or agency's structure and resources to perform at optimum levels based on rationally established goals and objectives. Before launching into a benchmarking program, two excellent publications should be read and understood. These publications are: *Improving Public Sector Productivity* by Ellen Doree Rosen and *Municipal Benchmarks: Assessing Local Performance and Establishing Community Standards*. Both of these publications are available from the APWA bookstore.

Adapted with permission from "APWA Reporter," October 1996

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## Local Highway Safety Improvement Program

Thanks to a 1988 workshop sponsored by the Alaska Transportation Technology Transfer Program and grants from the Alaska Highway Safety Planning Agency (AHSPA), the Fairbanks North Star Borough (FNSB) Rural Services Division provides a highway safety improvement program for its 103 active road service areas.

Unlike other areas of the State, the FNSB does not have area-wide road powers.

The road service areas provide road maintenance and construction services to 412 miles

of rural roads including 1,375 intersections.

Over 300 appointed volunteer

commissioners utilize private

contractors to complete the day-to-day

maintenance operations of the roadways.

The Rural Services Division provides the administrative

for these service areas. Most

of the commissioners are inexperienced

and unaware of the safety aspects of road maintenance. They tend to focus on regular, basic maintenance items such as blading the roadbed, snow plowing, sanding of roadways. Sign maintenance, roadside safety, and intersection visibility are not a high priority for them.

This summer, with the aid of a grant from AHSPA, Rural Services staff completed safety site inspections for all service areas as well as furnished 115 stop signs and 50 posts. Identification of intersection safety problems was stressed. Damaged signs and post were replaced and some previously uncontrolled intersections are now regulated. Individual service areas were required to pay for the cost of sign installation and associated intersection brushing to improve sign and sight distance visibility.

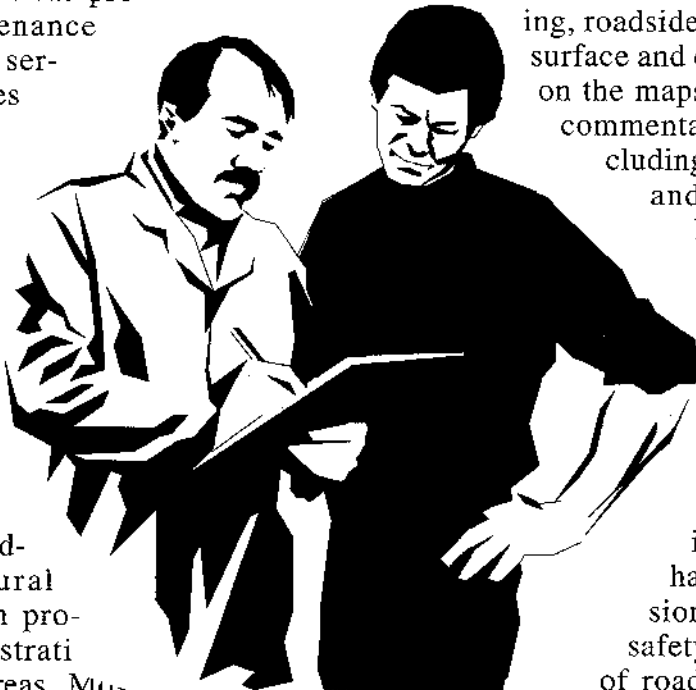
This most recent inspection marks the third complete road safety inventory since 1990.

Service area safety inspection information was transferred to commissioners. This included a color-coded service area map identifying various maintenance deficiencies, a reference maintenance checklist with recommendations, and photos of deficiencies. Items such as uncontrolled intersections, missing or incorrect signs, damaged or faded sign panels, non-standard mailbox stands, areas requiring brushing, roadside encroachments, trail crossings, road surface and drainage deficiencies are pin-pointed on the maps. Winter inspection reports include commentary on snow plowing operations including snow mounds that block intersection

and sign visibility, plowing widths, hardpack snow "drop-offs" at state road intersections, icy conditions, and winter trail crossings.

The difficulties in administering 103 road service areas and commissioners becomes overwhelming at times for the Rural Services staff, however, continuing a safety program is of prime importance. Our safety program goal has always focused on training commissioners to identify, analyze, and correct safety deficiencies to improve the safety of roadways. Now, more than ever, road commissioners talk safety. Information gathered from the safety inspections assists commissioners and Rural Services staff during the preparation of annual maintenance contracts. Snow plowing specifications now include provisions to minimize intersection sight distance problems. Increases in roadside brushing, sign repair and installation can be attributed to the safety program. There has been a clear improvement in the approach to maintaining the FNSB roadways.

Many road commissioners have complimented the safety program. We intend to continue it. Future plans for our safety program include school bus route safety, another round of winter inspections, a road safety data base including a sign inventory, and distribution of safety related material to commissioners and contractors.



# Leading causes of on-the-job injuries

No one wants to get hurt, on the job or elsewhere. Yet each year, millions of workers suffer worksite injuries, many of them preventable. Knowing the leading causes of these injuries is the first step in learning how to protect against them.

## Physical Overload

The primary cause of on-the-job injuries is physical overload: lifting too much (or improperly), straining, over-reaching, bending or twisting. To avoid physical overload, learn and use proper lifting techniques, never bend or twist while lifting or carrying, and use mechanical help whenever possible.

## Impact Accidents

The second most common cause of worksite injury is impact accidents - being hit by or hitting an object. The best ways to avoid impact accidents are to be alert to potential hazards (for example, never walk under scaffolding or cranes), to use the appropriate personal protective equipment (hard hats, eye protection, etc.) and to follow established safety guidelines.

## Falls

Fall injuries are as common in the home as they are at the worksite, so fall prevention is truly

everyone's business. To avoid injuries from a fall, be sure your footing is firm, wear slip resistant shoes and avoid hurrying. Make sure that walkways are well lighted and clear of obstacles. Learn how to use ladders and scaffolding safely, and always use handrails when climbing stairs.

## Machine Accidents

The last of the major causes of on-the-job injury is machine-related accidents - getting caught by moving machine parts. When working around any machine that rotates, slides or presses, use extreme caution - never wear jewelry or loose fitting clothing that could get caught in the machines. Always use safety guards, shields and appropriate lock-out procedures. Never work on a machine unless you are specifically trained to do so.

## Be Safe, Not Sorry

By their nature, accidents can happen anywhere at any time. But, by using safety sense, you can eliminate the overwhelming majority of worksite injuries. Be alert to the hazards you face each day, and learn what you can do to protect yourself.

*Reprinted with permission from "Interchange," Summer 1991.*

## Hard hats are a necessary safety measure

Often when we're talking about safety on the job, there are complaints about wearing hard hats. Comments we hear include: it's too hot in the summer; it's too cold in the winter; it's too heavy.

Remember that the slightest damage to any part of the brain can severely affect some other part of the body, either temporarily or permanently. The skull protects the brain. A hard hat protects the skull.

Tests have shown that in hot weather, the temperature inside a hard hat is 12 degrees cooler than a baseball cap. Your head is kept cooler because ventilation is provided between the shell and the

suspension. The hat's surface reflects the heat rather than absorbing it. For cold weather, liners are available. Don't wear a hard hat over ordinary caps or hats.

The average hard hat weighs 13 ounces. The average head weighs 13 pounds. At one ounce per pound of head, what a bargain!

If treated and worn properly, a hard hat can save you life. It can cushion a blow, protect against electrical shock, chemical spills or hot materials. Check the shell for cracks and the suspension system for cracking, tearing or fraying. Don't paint, drill holes or use solvent on the hat, because the shell will be weakened.

Finally, you may not need a hard hat if:

- you have x-rays proving that you have a four-inch skull and equally thick protection around the other sensitive head and neck areas of your body;
- your doctor just told you that you have six months to live, and he forgot to mention it five months ago during your checkup;
- you play Russian roulette for recreation every weekend;
- you enjoy stopping large, heavy rocks pitched by graders and loaders with your head.

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Place a check by the publications that you would like to borrow.

\_\_\_ **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. #1546

\_\_\_ **Bestämning 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. #1543

\_\_\_ **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. #1554

\_\_\_ **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. #1555

\_\_\_ **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. #1556

\_\_\_ **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. #1551

\_\_\_ **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. #1552

\_\_\_ **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. #1534

\_\_\_ **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. #1540

\_\_\_ **Handbook of Computer Models for Traffic Operations Analysis**, FHWA-TS-82-213, Diaz Secking & Associates Inc., U.S. DOT/FHWA, December 1982, 287 pp. #1550

\_\_\_ **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. #1541

\_\_\_ **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. #1532

\_\_\_ **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. #1535

*Alaska Transportation Technology Transfer Program*

*Notes on Publications & Videos*

\_\_\_\_ **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. #1549

\_\_\_\_ **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. #1539

\_\_\_\_ **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. #1545

\_\_\_\_ **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. #1547

\_\_\_\_ **Samband mellan falt-och laboratoriemoduler**, VTI sartryck, Foredrag vid NVF-seminarium i Finland, April 1994, Nr 235, Vag-och transport-forskningsinstitutet, 1995, 12 pp. #1542

\_\_\_\_ **Stenmaterialalets betydelse for funktionen hos asfaltbelagning - 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, Vag-och transport-forskningsinstitutet, 1995, 14 pp. and tables. #1544

\_\_\_\_ **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. #1538

\_\_\_\_ **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. #1548

These publications 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.

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Organization: \_\_\_\_\_

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

\_\_\_ **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

*Asphalt Maintenance Technology Transfer Program*

*Notes on Publications & Videos*

\_\_\_\_ **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

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**Report on the 1995 Scanning Review of European Bridge Structures, NCHRP Report 381, Transportation Research Board.**

This report contains the findings of a scanning review conducted to capture a broad overview of bridge technology in Europe with the goal of identifying technologies and practices that merit further consideration.

**Evaluation of Fly-Ash in Cold-Place Recycling, KU-95-4, Stephen A. Cross.**

This report documents an experiment conducted on the use of fly ash in reclaimed asphalt pavement (RAP). Results show the most effective amounts of fly-ash in a RAP mixture, as well as the effects if too much fly ash is added.

**Guidelines for Using Hydrated Fly Ash as a Flexible Base, 0-1365-1F, P. Nash, P. Jayawickrama, S. Senadherra, J. Borrelli and A. Rana.**

The cost of transporting granular materials for flexible bases can be a major portion of pavement construction costs. High aggregate transportation costs create the need for alternative sources of materials that are locally available. Hydrated fly ash is a material currently used to make aggregate for flexible base material.

**Correlation of KDOT and SHRP's Washington Hydraulic Fracture Index (WHFI) Aggregate Durability Test Methods, KSU 94-5, Mustaque Hossain and Muhammad Zubery.**

In this report, the aggregate durability test methods used by the Kansas Department of Transportation and the methods used by the Strategic Highway Research Council, are compared for accuracy.

**California Bank and Shore Rock Slope Protection Design, FHWA-CA-TL-95-10, J. Racin, T. Hoover and C. Crossett Avila.**

This report clarifies the procedure of the California Bank and Shore (CABS) layered rock slope protection (RSP) design method. Included are solved problems, figures and tables for practitioners who

design and build flexible rock revetments by the CABS method.

**Manual of Practice for an Effective Anti-Icing Program: A Guide for Highway Winter Maintenance Personnel, FHWA-RD-95-202, S. Ketcham, L.D. Minsk, R. Blackburn, E. Fleege.**

This manual provides information for successful implementation of an effective highway anti-icing program. It includes recommendations for anti-icing practices and guidance for conducting anti-icing operations during specific precipitation and weather events.

**Design of an ITS-Level Advanced Traffic Management System: A Human Factors Perspective. FHWA-RD-95-181, D.A. Mitta, M.J. Kelly and D.J. Folds.**

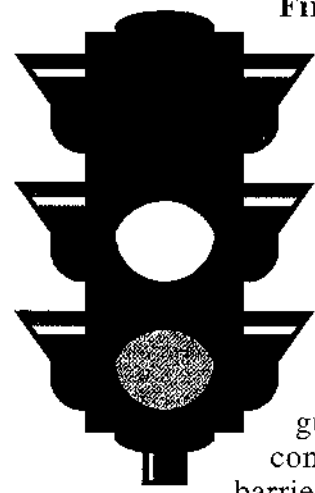
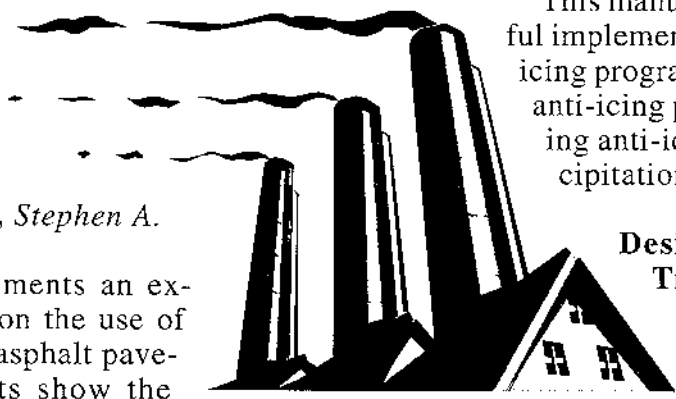
This report documents and approach for designing an Advance Traffic Management System (ATMS) from a human factors perspective, using a user-centered top-down system analysis. Methodologies employed in conducting this analysis, procedures for implementing such methodologies and analysis result are reported.

**Effective Noise Barrier Solutions for TxDOT: A First Year Progress Report; FHWA/TX-96/1471-1, R. Klinger, I. Busch-Vishniac, M. McNerney, S. Ho and R. Peron.**

Studies have shown that motor vehicle noise is a significant national problem in many communities. The purpose of the three-phase research project is to develop guidelines and a design guide for analysis, design and construction of effective noise barrier systems in Texas. This report documents phase one of the project.

**Impacts of Traffic Signal Installation at Marginally Warranted Intersections, FHWA/TX-94/1350-1F, James C. Williams and Siamak A. Ardekani.**

This report documents the development of guidelines for the decision whether to install a traffic signal at a marginally warranted intersection. The



recommendations are based on both field and simulation studies. The research included both delay and accident studies.

**Current Practice in the Repair of Prestressed Bridge Girders, FHWA/TX-96/1370-1, L.R. Feldman, J.O. Jirsa, D.W. Fowler and R.L. Carrasquillo.**

This report includes a literature search of currently utilized repair techniques, two surveys of current practice, an approach to the repair of impact-damaged prestressed girders, and findings of the first phase of the field study.

**Automated Daily Activity Report and Automated Construction Inspector's Report - User Manual with Analysis, TX-96/1991-1, J.E. Ragsdale, S. Sutton and Z.A. Goff.**

This report is a user's manual for these two programs (ADAR and CIR). These programs, designed for maintenance personnel and construction inspectors, respectively, help keep up with records both at the office and in the field.

**The Effect of Bar Orientation on the Behavior of Column Splices, FHWA/TXDOT-96/1363-1, Jeffrey S. Schmitz and James O. Jirsa.**

Column splices can either be oriented in a side-by-side configuration or in an offset configuration. The purpose of this study is to examine experimentally the behavior of both splice orientations, and to present recommendations for their usage.

**Development of Bundling Reinforced Steel, FHWA/TXDOT-96/1363-2F, J.O. Jirsa, W. Chen, D.B. Grant and R. Elizondo.**

In the construction of reinforced concrete structures, it is sometimes advantageous or even necessary to place reinforcement in bundles. The objective of this study was to provide an understanding of the bond mechanics of bundles, and to provide test data for improving development and detailing requirements for bundled bars.

**The Connection Between a Steel Cap Girder and a Concrete Pier, FHWA/TX-96-1302-2F, J.M. Ales, J.A. Yura, M.D. Engelhardt and K.H. Frank.**

This report examines the bearing-type connectors between steel cap girders and concrete, pier on overpasses in Texas. The research finds some flaws in the ability of the bearing connection to withstand uplift, and offers some possible solutions to the problem.

**The Osterberg CELL for Load Testing Drilled Shafts and Driven Piles, FHWA-SA-94-035, Jorj O. Osterberg.**

The Osterberg Cell(CELL) technology is a new

concept of load testing conceived to revolutionize conventional deep foundation load testing, facilitate future refinement of design methods, and realize significant cost savings. Advantages and limitations of the CELL are compared to conventional load testing methods in this report.

**Pedestrian and Bicycle Crash Types of the Early 1990's, FHWA-RD-95-163, W.W. Hunter, J.C. Stutts, W.E. Pein and C.L. Cox.**

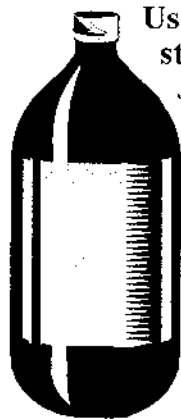
The purpose of this research was to apply the basic NHTSA pedestrian and bicyclist typologies to a sample of recent crashes and to refine and update the crash



type distributions with particular attention to roadway and locational factors.

**Changeable Message Sign Visibility, FHWA-RD-94-077, Philip M. Garvey and Douglas J. Mace.**

The object of this contract was to identify problems with the visibility of CMS's, particularly for older drivers, and to develop design guidelines and operational recommendations to ensure adequate conspicuity and legibility of in-service CMS's. A field survey, lab experiments and field studies were used to research this issue.



**Use of Glass Cullet in Roadway Construction, 0-1331-2F, P.T. Nash, P. Jayawickrama, R. Tock, S. Senadheera, K. Viswanathan and B. Woolverton.**

This study attempts to develop specifications for the use of glass cullet, a material made by crushing post-consumer glass, as a construction aggregate.

**Evaluation and Improvement of Bituminous Maintenance Mixtures, FHWA/TX-96/1377-1F, Cindy K. Estakhri and Joe W. Button.**

The objective of this study was to provide a means to assure quality of cold-applied asphalt stabilized maintenance mixtures. 14 different maintenance mixtures were evaluated in terms of field aging and workability.

**Detection and Mitigation of Roadway Hazards for Bicyclists, FHWA/TXDOT-96/1394-2F, S.A. Ardekani, S. Govind, S.P. Mattingly, A. Demers, H.S. Mahmassani and D. Taylor.**

The principle goal of this study was to identify and compile a list of potential hazards to cyclists, to rank order the hazards in terms of their perceived and actual degree of risk, and propose mitigation actions to address these hazards.

**Hydraulic Characteristics of Flush Depressed Curb Inlets and Bridge Deck Drains, FHWA/TX-96/1409-1, Mark Alan Hammonds and Edward Holley.**

This report presents the results of a research project to determine the hydraulic characteristics of and to develop design equations for two types of stormwater drainage structures: flush depressed curb inlets and bridge deck drains.

**The Effects of Various Piping Configurations on the Capacity of a Bridge Deck Drain, FHWA/TX-96/1409-2F, Steven Smith and Edward Holley.**

This report describes the effects of the down-spout piping on the capacity of a bridge deck drain. It provides details of the study results, as well as conclusions and design recommendations.

**Locations and Availability of Waste and Recycled Materials in Texas and Evaluation of Their Utilization Potential in Roadbase, FHWA/TXDOT-96/1348-1, A. Saeed, W.R. Hudson and P. Anaejionu.**

This report summarizes the result of a literature search conducted to determine engineering applications of various waste and recycled materials.

**A Comprehensive Evaluation of Environmental Conditioning Systems, TX-96 1455-1, V. Tandon, N. Vemuri and S. Nazarian.**

Many highway agencies face the problem of premature failure of asphalt concrete pavements due to

moisture damage. Various laboratory tests have been used to predict with moisture susceptibility of asphalt concrete mixtures, with little success. This report evaluates a new testing method, The environmental conditioning system (ECS).

**The Use of Compost and Shredded Brush on Rights-of-Way for Erosion Control: Final Report, FHWA/TX-97/1352-2F, Beverly B. Storey, Jett A. McFalls and Sally H. Godfrey.**

Highway construction practices have historically been viewed as a major contributor to non-point source pollution. The Texas Department of Transportation is taking a proactive approach to erosion control research by investigating the use of shredded brush and composted organic waste from right-of-way clearing operations as erosion control measures. The results demonstrated that compost

and shredded wood with tackifier are as effective as many of the standard erosion control materials and surpass others in cost-effectiveness, vegetation establishment and slope protection.

**Potential of Telecommuting for Travel Demand Management, FHWA/TX-96/1446-1, K.F. Turnbull, L. Higgins, D. Puckett and C. Lewis.**

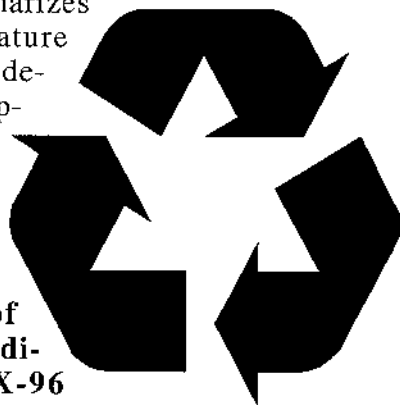
This study examines the use of telecommuting on a national and state level. It reviews the issues commonly associated with telecommuting and the approaches employed to address these.

**Performance of a Reinforced Soil Embankment, FHWA/OH-96/002, Tien H. Wu.**

This report documents a study on the influence of embankment size and different types of foundations and embankment soils on the strain in the reinforced soil embankment. The finite element method (FEM) was used to predict the performance.

**Test Methods for Elastomeric Bearings on Bridges, FHWA-TX-96/1304-2, Y.J. Arditoglou, J.A. Yura and A.H. Haines.**

This report discusses the material properties of elastomers for bridge bearings and the factors that influence these properties.



**Corrosion Control of Highway Structural Components by the Application of Powder Coatings, FHWA-RD-94-175, J. Peter Ault and Christopher L. Farschon.**

Recent regulations concerning volatile organic compounds (VOCs) and certain hazardous heavy metals have had an impact on the construction and maintenance practices of transportation authorities. This report presents the results of an evaluation of various powder coatings, which have a near-zero VOC emissions during applications, designed to protect atmospherically exposed steel and reinforcing steel from corrosion.

**Pavement Management Information System Concepts, Equations and Analysis Models, TX-96/1989-1, B.E. Stampely, B. Miller, R.E. Smith and T. Scullion.**

This report describes the proposed modules of TxDOT's new Pavement Management Information System (PMIS) including: utility curves, performance curves, needs estimate program, optimization program and impact analysis program.

**Investigate the Effects of Driving Stress on Health, FHWA-AZ-95-421, Edward K. Sadalla.**

This project concerned the relationship between age, cognitive deficits and driving performance under varying workload conditions.

**Conference on Household Travel Surveys: New Concepts and Research Needs, Conference Proceedings 10, Transportation Research Board.**

This publication documents the presentations at the conference on household travel surveys, held in Irving Calif. on March 12-15, 1995.

**Left-Turn Treatments at Intersections, NCHRP Synthesis of Highway Practice #255, James L. Pline.**

This synthesis will be of interest to traffic engineers in both public and private sectors, as well as to design engineers, safety and law enforcement officials, traffic signal technicians, and toher concerned with the accomodation of non-motorized transportation on the roadway. The synthesis describes the traffic conditions, sinalization, signing and geometric design issues associated with accomodating left-turning vehicles at intersections.

**Longitudinal Occupancy of Controlled Access Right-of-Way by Utilities, NCHRP Synthesis of Highway Practice #224, Ronald L. Williams.**

This synthesis presents information on the state transportation agencies' policies, practices and experiences associated with occupancy of the rights-of-way on controlled- (or limited-) access highways.

**Alternatives to Motor Fuel Taxes for Financing Surface Transportation Improvements, NCHRP Report #377, Arlee T. Reno and Joseph R. Stowers.**

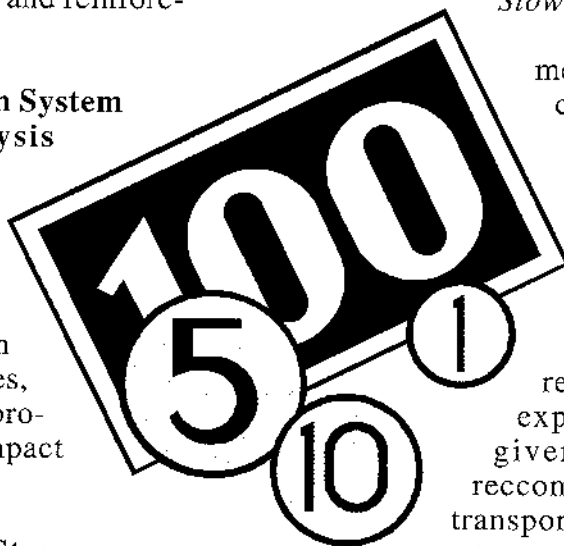
This report contains recommendations, which are applicable to all levels of government, for evaluating alternatives to the motor fuel tax. An evaluation framework is presented and demonstrated. General assessments and recommendations of future expectations and trends are given. An approach that recommends a contract between transportation agencies and their customers is also suggested as an aid in generating adequate revenues.

**Assessing the Effects of Highway Widening Improvements on Urban and Suburban Areas, NCHRP Synthesis of Highway Practice #221, Thomas N. Harvey.**

This synthesis presents information on the reason for highway widening projects, the nature of the projects and the methods and practices for application of analytical techniques used to measure the potential or actual impacts of the projects on people and the physical environment.

**Load Transfer for Drilled Shafts in Intermediate Geomaterials, FHWA-RD-95-172, M.W. O'Neill, F.C. Townsend, K.M. Hassan, A. Buller, P.S. Chan.**

This study investigates the resistance and load settlement behavior of axially loaded drill shafts in geomaterials at the boundary between soil and rock, termed "intermediate geomaterials." The primary objective of the study was to develop or adapt simple design-level models to predict resistance and load settlement behavior.



### **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.

1997

# IRWA ANNUAL SEMINAR

July 15-19, 1997

Anchorage, Alaska

*Top-quality education in right-of-way acquisition, property management, environmental issues, and other aspects of transportation.*

## KEYNOTE SPEAKERS

### Day 1

Maurice Strong  
Former CEO, Ontario Hydro  
*environmental aspects of development*  
Albert Hale  
President of the Navajo Nation  
*native land rights*  
Honorable Bud Shuster  
U.S. Representative, Pennsylvania, and  
Chair, House Transportation and  
Infrastructure Committee  
*transportation planning*

### Day 2

Honorable Frank Keating  
Governor, Oklahoma  
*disaster, recovery, and planning*  
Steve Winn  
CEO, Mirage  
*tourism*  
Dr. Larry Bacow  
Professor, Law and Environmen-  
tal Policy, Massachusetts Institute  
of Technology  
*land use planning.*

### Day 3

Richard Cheney  
CEO, Haliburton, Inc.,  
Former Secretary of  
Defense  
*Base Closures*  
Kenneth Thompson,  
President, ARCO Alaska  
*Privatization.*

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Concurrent sessions each morning are smaller, more focused discussions of the keynote speaker's topic of the previous afternoon. Conference participants will choose from several morning sessions.

## SESSIONS

### Tuesday

#### Environment

*Viable Use of Contaminated Properties: is the Brownfields Program Working?*  
*Balancing Economics and Social Impacts: How "Environmental Justice" Affects Agency Decision-Making*  
*NEPA - Does It Have a Future?*  
*Emerging Trends in the Regulatory Arena*

#### Native Land Rights

*Native Land Rights: Impact and Influence*  
*Corporate Business Partnering with the First Nation*  
*Access Issues on Native Lands*  
*Native Land Issues Panel Discussion*

#### Transportation Planning

*Acquisition and Relocation of Tenant-Owned Improvements*  
*ISTEA Update*  
*Federal Policies Update*

#### Additional Topics

*Legal Descriptions: Interpreting What They Really Say*  
*How to Use the Internet*

# SESSIONS

## Wednesday

### Disasters, Recovery & Planning

*The Valdez Incident: "Challenges Met for the Future: Outlook for Avoidance and Lessons Learned on the Arduous and Innovative Road to Recovery" - Panel*

*Natural Disasters: "Recovery and Planning: The Impact of Past Incidents and the Path to Follow in Preparing for Potential Future Occurrences" - Panel:*

### Tourism

*.Alaska Tourism, Bursting at the Seams: Where Do We Go From Here?*

*Trends and Impacts of Eco-Tourism - Alaska and Beyond*

*Managing Tourism Assets - U.S. and Canadian Perspectives*

### Land Use Planning

*Utility Corridor Management Issues: "The Protection, Valuation and Visualization of Multi-Use Pipeline and Utility Corridors*

*Takings Legislation: The Potential Effects on Right of Way Activities*

*How to Plan and Budget for the Impact of Takings Legislation on Right of Way Projects*

### Additional Topics

*Saving the Salmon: Solutions to Endangered Species Problems from Hydroelectric Projects*

*Surveying and Mapping of Contaminated Properties*

*Market Reaction to Environmentally Damaged Properties*

*Wetlands Policy Status.*

## Thursday

### Base Closures

*Base Closures and Conversions: An Overall Perspective*

*Relocation "HAP"*

*Resolution of Hazardous Waste Issues*

*Redevelopment of a Surplus Arsenal - Panel*

*Fort Greely Base Closure and Planned Redevelopment - Panel*

### Privatization

*When Public Services are Privatized*

*When Public Assets are Privatized*

*Team-Building for Privatization*

### Additional Topics

*Lessons from Atlanta, Plans for Salt Lake City*

*Acquiring Mitigation Lands for Protected and Endangered Species*

*Relocation Assistance Policy Update*

*Appraisal Standards Update*

*Just Compensation Issues*

*International Valuation Issues*

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*hosted by*

*IRWA's Anchorage Chapter, Sourdough Chapter 49*

*Chapter 49's primary partners in presenting this training effort are:  
the Department of Transportation and Public Facilities' Alaska T2 Center  
Alyeska Pipeline Service Company.*

For further information and full registration materials, contact Susan Truskett at (907) 762-4735.