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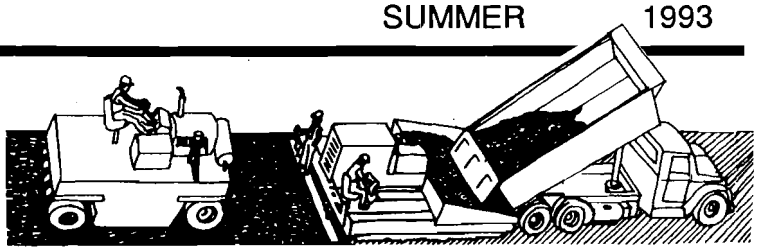
INTERCHANGE

Volume 7, Number 4 SUMMER 1993

CONSIDER YOUR CHANCES

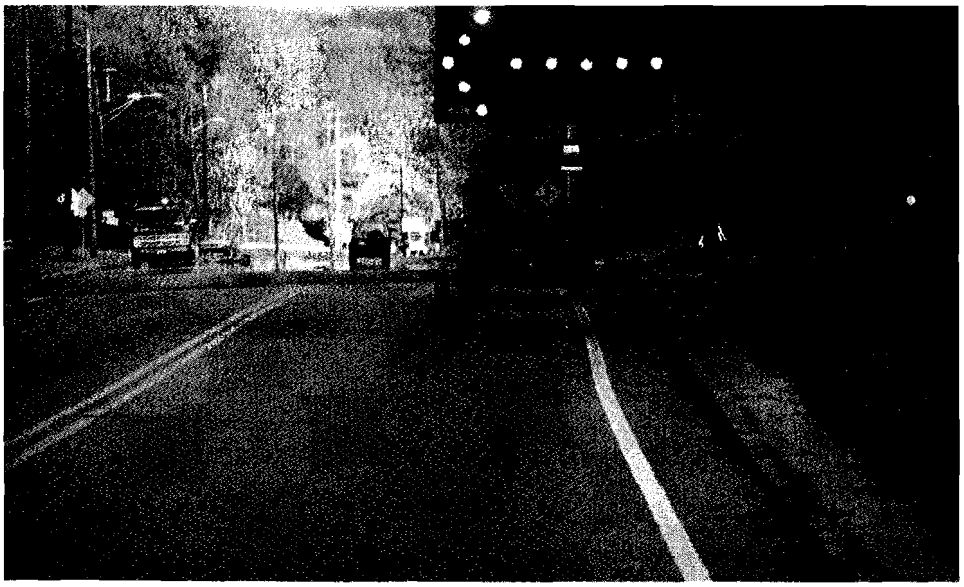


Everybody knows that if you tried to do a paving job in January or February, you would need to have extraordinary luck to be successful. In fact, the chances of success are so slim that no one ever tries to "get lucky". Even in the warm Southern Sunbelt states, paving operations generally shut down for the winter.

But what of the rest of the year? What is the "best" time to do paving? Would it not make sense to consider your chances, and then try to schedule your paving jobs at the time of the year when the chances of success are the greatest?

First, let us define success. A paving job is successful if it lasts for the period of time that it could reasonably be expected to last. Thus, there would be no premature failure.

This period of time might be five or six years for a single-layer chip seal, and up to fifteen or twenty years for a substantial thickness of hot-mix asphalt concrete. One must consider the traffic (both its volume and the loads) as well as the strength of the supporting layers when estimating the lifetime of an improvement. Of course, it has to be assumed that the construction would be done by a knowledgeable crew, using good quality materials.



What's wrong with this picture? Turn to page 6 to find out.

The graph on Page 2 depicts the probability of successful paving on the first day of each given month. It is based on the weather in the Northeast. In general, it would be applicable for all of the United States, with the possible exception of Florida and parts of Arizona and California, where the favorable construction season is longer.

The graph shows that the chances of getting a successful paving job are greatest in the months of July and August. The construction season for hot-mix paving starts about one month earlier than it does for cold-mix and chip seal operations, and extends about one month later. This is because the latter are dependent upon both temperature and humidity for

Continued on Page 2

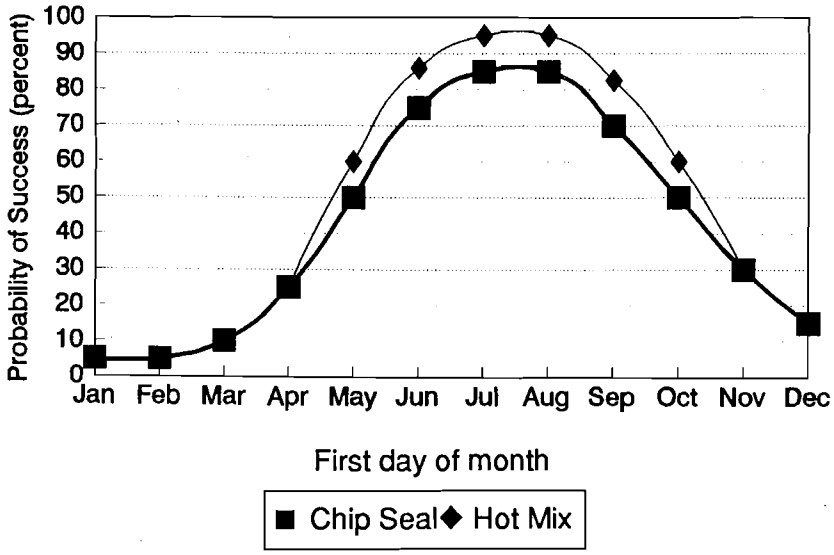
***Chances**...continued from Page 1*

curing of the emulsified asphalt. The conditions required for drying hay in the fields are about the same as for curing cold-mix and chip seals. And all the farmers know that they must make hay when the sun shines! Note that there is never a time when the chances of success are either zero or 100 percent. There is a gradual transition from "poor" (less than 50 percent) up to "excellent" (better than 80 percent), and then back down again. The chances get steadily more favorable in May and steadily worse in September.

Even in July and August, however, you must consider the weather. If a thunderstorm is predicted for a given day, it would be wise to spend the taxpayers' money doing something other than paving. A cold night in late September can pose major problems for paving early the next morning. If it is a nice, warm day, it would be wise to wait until late morning to begin paving, thereby allowing the old surface to warm up.

All years are not the same, especially in the fall. It is possible to have few very warm days in late October in one year, and "get away" with late season paving. Try it again in a subsequent year, and the new pavement fails before the next spring.

Probability of Successful Paving



The graph depicts the average year, neither the worst or the best.

Given this information, the following recommendations are suggested:

- Wait until after Memorial Day to begin all paving operations.
- Try to do as much of your paving as possible in July and August.
- Complete all cold-mix and chip seal paving by Labor Day.
- Complete all hot-mix paving before Columbus Day.

By considering your chances for success and choosing the best time of the year to do paving, you will ensure that you get the maximum amount of value out of your paving dollars. If your scheduling is accompanied by good workmanship, you will create a situation that will give you the best possible opportunity to avoid premature failures!

This article was written by Lynne H. Irwin, Director, Cornell Local Roads Program, N.Y. It appeared in the Spring 1993 edition of their newsletter, Nuggets and Nibbles. *Reprinted with permission.*

IN THIS ISSUE

WHY DOES MY COMPUTER HATE ME?

by Chris Ahmadjian

YOUR COMPUTER CAN BE YOUR FRIEND. No, really, it can.

I've taught computer basics to quite a few people over the years, and have heard too many people who are learning use comments like:

"It hates me. I can tell."
"It never works for me."
"I always hit the wrong key."
"I'll just break it."
"I'm so stupid when it comes to computers."
"See, I told you that would happen."

Does this sound like you, or someone you know in the office? Contrary to what many people think, computer learning is not an age issue or an intelligence issue, but rather a measure of your risk taking ability. If you are having trouble with computers, your problem could be your hesitation to try pushing buttons to see what they do. You need to start taking more risks and hacking your way around the software.

Now, before you start hitting every key in sight, there are three safety rules you must follow so you won't have that fear of damaging the machine or other people's data.

Backup, Backup, Backup. Make sure there is at least one floppy disk copy (two copies are better) of the latest version of all computer data files, before you start.

On IBM compatibles, never type in the word "FORMAT." Never mind why, just don't do it. If you have to format a floppy disk, ask for help, or call me.

Save, Save, Save. Save every time before you experiment or every five or ten minutes, and don't get upset if you do lose data. It happens.

So, sit down at the computer when you have a minute and try a few keys you don't know. The worst that can happen, if you follow the rules, is that you will have to repeat the last few steps.

If you have computer questions or would like a lesson in computer basics, call us. We are presently starting a software library. This software will be for demonstration and distribution. If you have a software need, call us and we will see what we can find.

HACK AWAY

Now that I've convinced you to sit down at the computer and give it a try, I will confess there are two other things that will make the computer a frustrating learning experience. They are:

Trying to read the books that come with your software. No one can read those books. They are written by people who understand computers, not human beings. Scan the books for pertinent information that will get you started. The books cannot teach you more unless you have some hands-on experience. Use the books for reference if all else fails.

Expecting the computer to be smarter than you are, and to function perfectly. It is incomprehensible how stupid a computer is. When something goes wrong, the computer still thinks it did everything right. In the computer's defense, it does nothing except what people tell it to do. So, if you give the computer the wrong command, or if the writer of the software gave the computer the wrong instruction, you will have a problem.

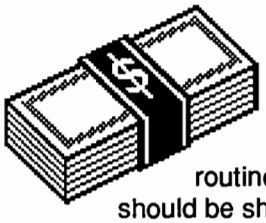
One subtle problem I often have is when the software reflects the programmer's way of thinking. If I am not thinking the same way she was, I clash with the software.

When people ask me how I solve a computer software problem, I tell them I "think stupid". I stop myself and ask, "If I were really stupid and had to do everything by the book with a limited number of instructions, how would I do this?." Don't out-think or out-reason your computer.

Fortunately, most software uses common instructions and commands. With a little practice, you'll be hacking through most any program. This is especially true for the Macintosh.

I won't discuss hardware problems, because I find them to be much like trying to diagnose electrical problems with a car. It's usually best to bring it to the mechanic, so she can replace parts.

TRAINING PAYS OFF



ALL THE HORSEPOWER in the world doesn't do any good unless you have competent, well-trained human power. This requires training.

Training and education are not expenses, but investments. As in any investment, you want to get the best possible return. To do so, you need to know your workers. What are their strengths and weaknesses? Which of them have special talents? Can you make trainers out of them?

As you look at your crew's training needs, you also need to look at your attitude toward your employees. Are they doing the best job they know how to do? If not, the problem may be that they don't know what is expected, how what they do will be evaluated, or most importantly, why they are doing certain things in certain ways.

You need to provide each employee with a clear understanding of the policies and procedures under which they are expected to carry out their duties. At the same time, you need to encourage them to think for themselves within that framework. Encourage them to solve problems by using their heads, not just their hands. Don't punish creative thinking and innovation. If someone solves a problem by breaking a rule, you may need to make it clear that the solution was not acceptable as a general rule and they probably should not do it again. This is particularly true if the solution put your agency at risk in terms of potential liability claims. But don't penalize the person for trying.

Training sessions should be regular and timely. They need to become an expected part of the work routine. Sessions should be short and simple. Several brief sessions will probably be more productive than one longer session. Active people are not used to sitting around in meetings. Take one or two topics at a time and cover them thoroughly.

You may not be able to do all training in-house. Consider investing in attending conferences such as the APWA International Public Works Congress and Equipment Show and the T2 Center Workshops. Don't just send the supervisors. Choose people carefully and objectively to avoid the appearance of favoritism. **Attending training programs should be a reward for people who have done outstanding work or have exceptional safety or attendance records.** Always expect those who attend to provide some feedback for the rest of the crew.

Continued on Page 5

Mini-workshop update

In May, Dick Grant and I travelled to Springfield, Bolton, Lee and Amesbury to talk about work zone safety and the Manual of Uniform Traffic Control Devices. The mini-workshops lasted two and one half hours, and included lecture, discussion and videotapes.

We would like to do a mini-workshop in your town. Call us to arrange a date and time.

-- Chris Ahmadjian

The Bolton DPW crew (from left to right): Eric Schartner, Mark Gaynor, Gar Vattes, David Jaaskela, Donald Hilton (sitting on hood), Gene Black, Austin Greenwalt, Harold Brown (back).

Training...continued from Page 4

Investing a few dollars in training will pay off big dividends. It puts your employees on your side when you conduct in-house training. You will have someone in the audience that you can bring into the discussion. In fact, you should probably include these people by making them part of the instructional team.

When you send people to conferences or training sessions, publicize it in your newsletter or bulletin boards and in local newspapers. People like to see their names in print when they have done something significant.

If attending outside training is out of the question, consider pooling your resources with those of a nearby agency and work together to accomplish your training goals. Encourage your personnel to meet with crews from other towns or counties to compare notes and learn from each other.

Without qualified people to operate your equipment, it might just as well be sitting in the salvage yard. Your staff is your most valuable resource. People really do make the difference. Training does pay off!

This article was reprinted with permission from Road Business, Volume 7, Number 4, a publication of the New Hampshire T2 Center. It originally appeared in the August 1991 APWA Reporter.

Shrewsbury Uses Training To Improve Pavement Quality

The day after John Knipe attended our Hot Mix Asphalt workshop, one of his paving contractors came to town. (For those of you who do not know him, John Knipe is the Superintendent of Public Works for the town of Shrewsbury).

John threw the 5 ton roller that the contractor brought off the job, and told him to bring in a second 10 ton roller. (This is the minimum roller weight that should be on your jobs). He also found that the screed operator did not have the screed vibrator on; in fact, the operator said he never knew what the vibrator was for. John had him turn it on, and said the mix looked better immediately.

We love to hear about such immediate benefits. Our thanks to workshop speakers Bob Joubert and Bob Christman of the Asphalt Institute for this informative workshop.

John Knipe, Superintendent of Public Works, Shrewsbury, MA

HAVE THE BAYSTATE ROADS PROGRAM HELP YOU TRAIN!

Full Day Workshops: We offer one day workshops on a variety of topics throughout the year for a fee of $28.00 per workshop. Call us if you are not on our mailing list.

Mini-Workshops: These are free half-day workshops (usually 9:30 - noon, however we are flexible). You choose the topic, or we can suggest one. Work Zone Safety is this summer's hot topic.

Videotape Lending Library: Choose from over two hundred public works, engineering, safety, and management videotapes in our library. These tapes are informative and a great way to start an in-house training program in your town or city.

NEW LISTINGS

Summary Report on Selected Guardrails, June 1992, U.S. DOT/ FHWA. This report summarizes the crash test results as well as the construction, maintenance, and accident experience observed for three types of guardrails.

The guardrails described in this publication are the modified South Dakota 3-cable guardrail, the modified Minnesota 3-cable guardrail and the modified three beam guardrail. The modified South Dakota 3-cable guardrail is similar to the standard G1 cable guardrail except that a lighter, less expensive 4-lbs. per foot flange-channel post is used instead of the standard s3x5.7 post.

The modified Minnesota 3-cable guardrail uses a closer post spacing and wooden posts with a weakening hole. This hole helps minimize the chance of causing a small car to roll over. The modified three beam guardrail is a variation of the standard G9 three beam guardrail. It uses a unique guardrail blockout that helps improve the barrier performance in large vehicle collisions.

The development of these systems is summarized and the basic design principals are explained. Where it was available, construction, cost, and accident data is presented from states that have used these systems.

Guide to Safety Features for Local Roads and Streets, U.S.DOT/ FHWA. This publication provides local transportation agency personnel with information related to highway safety features intended for use on roads and streets in rural and small urban areas.

The intended uses and functions for each of several safety features are discussed. Examples of both good and poor practices are given. This guide is especially helpful to field personnel involved in construction, installation and maintenance of safety related features on the highway system.

Familiarity with the material will enable one to: install and maintain highway safety features and devices, recognize potentially hazardous situations and suggest remedies, and identify conditions which may make some existing safety features ineffective.

Precast, Prestressed Concrete Short Span Bridges (spans to 100 feet), 1980, Prestressed Concrete Institute. This publication describes the advantages of the use of precast, prestressed concrete in short span bridge construction. Cost, maintenance, and durability are addressed, as well as general information for designers.

And other available publications:

Standards for Work Zone Traffic Control (Part VI of the MUTCD), 1988 Edition, American Traffic Safety Services Association.

Local Low Volume Roads and Streets, November 1992, American Society of Civil Engineers.

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Answer from Page 1

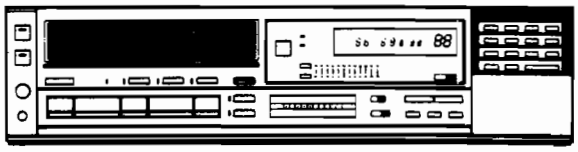
- An arrow should never be displayed on a two lane roadway. The arrow in the photograph indicates that the travel lane is closed and that traffic should move into the next lane over. Here, even though the lane is wide, traffic was observed moving into the oncoming lane as it passed the arrow board. According to the Manual of Uniform Traffic Control Devices, arrow boards must display the caution mode only when used on a two lane roadway. The caution mode is a straight line or any four or more lights that flash and do not form an arrow.

- There are no cones or barrels to move traffic around the arrow board and the work zone that follows it.

- The arrow has been moved in front of the "Road Construction" sign. Although several other signs are still in front of the board, their distances are now incorrect and the final sign of the series that warns drivers about the site is no longer functioning.

Safety and liability are the issues here. Although the last answer may seem minor, if the arrow board is hit, it is the type of question that will arise. Why was the board in the left arrow mode without cones and outside of the marked construction zone? You will have to answer these questions, and may find your town is liable for damages.

NEW VIDEOTAPES



MO-186 **Blade Patching**
11:45 minutes

This step-by-step review of blade patching covers such topics as equipment and materials used, preparation of the work area, the importance of traffic control, and application of the patch itself.

DC-138 **Hydrated Lime: Key to Improved Asphalt Pavements**
21 minutes

This tape describes the advantages of the use of lime in asphalt hot mixes. Increased strength, pavement durability, and initial stiffness are all mentioned. Pavement tests with the use of lime are shown, as well as the mixing procedure.

ST-141 **Testing and Field Inspection of Roadway Delineation**
35:43 minutes

The goal of this tape is to assist highway agencies to develop a field inspection program to evaluate roadway delineation systems. Pre-application of materials, application of pavement markings (and other delineation), maintenance, and inspection are covered.

ST-142 **Right Before Your Eyes**
11:49 minutes

The need for more visible roadway markings is underscored in this video. The tape begins with a description of roadway markings, and a definition of the impaired driver. New technology of restriping, preformed tapes, epoxies, and raised pavement markers are mentioned.

ST-143 **Safer Roadside**
18 minutes

This videotape discusses the Washington State Department of Transportation's policy for controlling utility use of highway right-of-way. WSDOT worked with the utility companies to determine how fixed roadside obstacles could be safely accommodated. An approach based upon annual mitigation targets was cooperatively developed and adopted.

July 21, 1993
Steel Bridge Forum
Albany, N.Y.
Contact: (202) 452-7190

August 4-6, 1993
Multi Modal Operations Planning Workshops
APTA
Westin Hotel
Boston, MA
Contact: Larry H. Pham
(202) 898-4123

August 27 - Boston; August 26 - Brockton; August 6 - Springfield; August 25 - Woburn; August 24 - Worcester (all 1993)
The Exceptional Assistant - Achieving Respect as an Indispensable Secretary, Administrative Assistant, or Support Staff Member
Contact: (800) 255-6139

October 7-8, 1993
Soil Liners and Covers for Landfills - "How to Comply with Subtitle D"
Boston, MA
Contact: (800) 548-2723

September 18-23, 1993
1993 International Public Works Congress and Exposition
American Public Works Association
Phoenix, Arizona
(800) 765-7616

December 5-7, 1993
Seventh Annual 4R Conference & Road Show
Philadelphia, PA
Contact: (708) 298-6622

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MUG SHOT

Chris Ahmadjian

Wanted: Success stories!

John Knipe (Shrewsbury DPW) told us his success story and let us take his picture, so we gave him a Baystate Roads Mug.

Harold Brown (Bolton DPW) got his mug by letting us tell about his mini-workshop experience, and by convincing his crew to stand still and smile while I took their photograph.

Reward: Your own Baystate Roads Mug!

Earn your mug now. It's not hard, and will help you get recognized for the innovative work you do. In addition, sharing innovative ideas helps us all to do a better job with less frustration and stress.

Simply call us at the number below, or send in your ideas to Chris Ahmadjian, Baystate Roads Program, 214 Marston Hall, UMass, Amherst, MA 01003.

The Baystate Roads Program, which publishes *Mass Interchange* each quarter, is a Technology Transfer (T2) Center created under the Federal Highway Administration's (FHWA) Local Technical Assistance Program (LTAP). FHWA is joined by the Massachusetts Highway Department, the Department of Civil Engineering at the University of Massachusetts/Amherst, and local public works departments in an effort to share and apply the best in transportation technologies.

In addition to publishing *Mass Interchange*, the Baystate Roads Program facilitates information exchange by conducting workshops, providing reports and publications and videotapes on request, and offering one-to-one technical assistance on specific roadway issues. Because the program relies on input from many sources, inquiries, articles, and ideas are encouraged.

To contact the Baystate Roads Program, call (800) 374-ROAD (in state) or (413) 545-2604.

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