London are beginning to recycle their glass. The town acquired a glass crusher through a state matching grant (New Hampshire the Beautiful) in December of 1989. A glass crusher costs about $10,000. New London built an area around their crusher for another $2,000 to assist in handling the materials during the crushing operation. The machine is powered by an 18 horse engine and it lets New London process about 20 tons of glass in a day. This has allowed the town to recycle glass without separating colors. Last year the New London recycled over 119,000 pounds of glass. “We save a good amount of money not having to haul all this waste out of town for disposal which would cost about $75 per ton,” said Fred Welch, town of New London’s road agent and administrative assistant. It didn’t take them long to pay for the capital investment in the crushing operation.

The big question is what to do with the crushed glass once you’ve got it. Most of the material is 1/4-inch or less and looks pretty much like sand. Fred is looking into using the crushed glass for fill around foundations and for a base course under a roadway, “It has tremendous drainage and compaction properties.” “But no matter,” says Fred, “we’ve got plenty of places to try out this stuff and we’ll have no problem using it up around here. You have to realize, this material is a lot more dense than sand. A load of uncushed glass will result in a very small amount of crushed material.” Fred’s test site is one that he can keep a good eye on -- the area around his public works garage.

The New Hampshire Resource Recovery Association (NHRRA) is a recycling leader

Moving America: Our National Transportation Policy

The goal of the Federal Government is to put the “trust” back into the Highway Trust Fund

No industry in the Nation is more important to U.S. economic growth than transportation. Every household and every business, manufacturers, farms, utilities and our national security all depend on transportation. As we enter a new decade and head toward the 21st century, the United States must renew its commitment to maintain the best transportation system in the world.

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This system must provide safe and efficient transportation for all people and communities, carry passengers where they need to go and move vast quantities of goods we produce and consume. Using input and expertise from the users and providers of transportation, interest groups, private citizens, the academic community, the transportation professionals and local and State public officials, the U.S. Department of Transportation has developed and issued the National Transportation Policy. The six major themes of the National Transportation Policy include:

- Maintain and expand the Nation’s transportation system
- Foster a sound financial base for transportation
- Keep the transportation industry strong and competitive
- Ensure that the transportation system supports public safety and national security
- Protect the environment and the quality of life
- Advance U.S. transportation technology and expertise.

In the near future Congress will be considering the reauthorization of the aviation, mass transit, highway and safety programs. These reauthorizations will provide the opportunity to re-establish the Federal role recognizing the increased responsibilities and capabilities of the State, local and private sector partners. The legislation must give the other levels of government the flexibility and the tools they need to address their own transportation needs. The key element in financing the Federal share of transportation improvements has been the user charges (gas tax). Plans at the Federal level are to continue and increase reliance on user charges. The dedicated Highway Trust Fund has provided the foundation for sound and vital transportation programs for highways since 1956, as evidenced by the development and construction of the Interstate Highway System.

Every time you buy gasoline for your automobile, nine cents of the cost of each gallon goes into the Highway Trust Fund for transportation projects. These monies are then dispersed to the States with a specified matching level of funds contributed by the State (sometimes local) government. In recent years, the unspent balances in the Highway Trust Fund have caused many transportation users to call for an increased spending level to meet the growing highway program needs and to assure that those who are paying the money into the Highway Trust Fund will receive the benefits. The goal of the Federal Government is to put the “trust” back into the Highway Trust Fund by increasing the spending of the trust funds for the benefit of the highway user.

The existing highway authorization bill expires in 1991. The Federal Highway Administration has recently completed a draft of a proposed reauthorization bill which would extend the Federal-aid highway program through 1996. While this bill is subject to change as it goes through the full legislative process, described below are some of the features being proposed by the Federal Highway Administration. The proposed reauthorization bill would incorporate the existing Interstate and primary program into a single program called the National Highway System. This National Highway System would include all Interstate highways, other rural principal arterials; e.g., Routes 4, 9, 101, etc., urban freeways and other urban principal arterials. Toll roads would also be eligible for Federal funding. For the most part, projects on the Interstate and other fully controlled access routes will be funded at the 90% Federal level. Toll road projects would be at 35%, traffic management projects at 60% and all other projects at 75% Federal share.

The second major provision of the reauthorization proposal is the Urban/Rural Program which combines a number of existing Federal-aid programs. Any public road that is not on the National Highway System or is not functionally classified as a local road is eligible for Federal-aid funding under this program. This program will affect the State and those local governments (primarily cities in New Hampshire) that presently provide matching funds for Federal-aid roadway projects. The Federal matching share on these projects are proposed to decrease from 75% to 60%. Another program that the local govern-

ments participate in is the bridge program. This program remains essentially the same except that the Federal matching share is proposed to decrease from 80% to 75%.

The one program that could provide the greatest benefit to the highway programs of the smaller towns is the Research and Technology Program. The funding level would be expanded to make the United States a leader in improvements in highway productivity by incorporating more advanced technology in the construction and operation of highways. Technology transfer activities will continue to provide technical assistance to the State and local highway agencies. Also, local training provided by the National Highway Institute will be expanded to include both rural and urban transportation education and training programs.

The proposed reauthorization bill would extend the highway program an additional five years with no changes in the highway user taxes. By allowing the States to spend all of their money in the existing Federal-aid accounts and by spending down the Highway Trust Fund balances, the annual Federal-aid highway authorization for fiscal years 1993-1996 is proposed to be substantially higher than the current level of about $12-13 billion. In addition to an increased overall highway program, the proposed bill would provide increased flexibility to the States and local governments and would return more responsibility to the State and local government by increasing their matching share of local highway projects.

To achieve the transportation system the Nation needs for the future, we must recognize the changing Federal, State and local roles. The Federal Government must concentrate more of its transportation resources on projects that advance the performance of transportation systems of national and inter-regional significance. While for rural and urban projects on local roads the State and local governments need to assume greater responsibility. Working together we can Move America into the decade of the 90's on an improved transportation system.

If anyone is interested in receiving a copy of the statement of National Transportation Policy entitled, Moving America, New Directions, New Opportunities, please call 225-1605 or write to:

Mr. Vincent F. Schimmoller
Division Administrator
Federal Highway Administration
55 Pleasant Street, Room 219
Concord, New Hampshire 03304
Keep it Clean!

Proper PC care can keep you and your computer working happily by Doug Dygas, Operating Systems Group, University of Nebraska, Lincoln, NE

As with most necessary, but mundane activities, keeping your personal computer and/or terminal clean and in good working order requires common sense, patience, and diligence. Some tips given here can assist in keeping your equipment in its best condition.

The Hardware Environment

Electronic computing equipment should be set up to be easily used, as well as cleaned. Keep the following items in mind when placing your computer or terminal:

- all ventilation slots should be unobstructed,
- cables should not be kinked or stretched,
- other heat sources should be kept to a minimum,
- the device stand should be sturdy
- every effort should be made to keep items such as fans and space heaters off of the same plug-in circuit as the computer hardware.

The Software Environment

A little personal computer hygiene also helps keep your PC in good working order. For best results, DO NOT eat, drink, or smoke around computer equipment. Keep your hands clean. If not heeded, you will, at a minimum, need to clean the device more frequently and you may end up with permanently damaged hardware. There are other less obvious factors to keep in mind. Wearing fuzzy wool sweaters can be hazardous to a PC’s health since static electricity can do nasty little things to computer devices.

Exterior Cleaning (Light Duty)

The two places that most frequently need cleaning are the terminal or monitor screen and the keyboard. For the screen, just clean it when it looks dirty. Use a nonabrasive cloth and glass cleaner.

The keyboard is another matter. The best time to clean a keyboard is before it looks like it needs cleaning. Over time the oil and dirt on your skin will build up on the keys. If you let this happen, it will become very difficult to remove. If you clean your keyboard once every two or three months, it should not be a problem.

Using a screen cleaner will work just fine if there is little or no dirt on the keyboard. Just wipe it with a paper towel or lint-free cloth. Let the foam subside a little and then wipe the tops and as much of the sides of the keys as you can. Do the same for the rest of the keyboard and the other device elements. Remember, if you have a PC/ES2 with a hard drive, park the drive first before wiping down the device.

Exterior Cleaning (Heavy Duty)

When cleaning a keyboard which has not been cleaned in a long time, you will need a work area at least twice the size of the keyboard that can be sprayed with foam cleaner. You may need a cleaner made especially for computer component covers.

Now comes the fun part of removing the key caps. New keyboards have key caps that come in two pieces, a key cap post and sleeve. It is the sleeve that you want to remove. If you have one, use a key cap tool to remove the sleeves. You can also just use your fingers to pull them off.

Older keyboards have one-piece key caps and it takes a little more effort to remove them. The key cap tool will work here as well, but if you don’t have this tool, improve by using a small, flat blade screwdriver or similar implement. Place the blade of the screwdriver under the key cap and lift up with firm, steady pressure carefully prying the key cap off.

It is highly recommended that as you remove the key caps/sleeves, you arrange them in the same pattern as they were on the keyboard. The spacebar should probably be cleaned in place. Because of the way it is fastened onto the keyboard, it can be very difficult to reinstall properly. If you can, clean it while its left on the keyboard.

From a distance of a couple feet, spray the cleaner over the removed key caps. You will get better results if you wait a bit before you start wiping off the key caps. While waiting to replace the key caps, take a little time to clean the keyboard case to remove any dust, fuzz, lint, or hair, gently using a vacuum cleaner.

Use a lint-free cloth or similar material to wipe each key cap. You may find that one cleaning isn’t enough. As you finish with a key cap, reinstall it on the keyboard. When finished, you should try each key to be sure it works properly. If a key doesn’t work, removing it and reinstalling it should do the trick.

For cleaning the rest of the computer components, just spray the cleaner on a cloth and wipe down the device. Remember, if the computer has a hard disk drive, park it first. If the components are especially grimey, turn the computer off and spray the cleaner on the component case. Let the cleaner work for a few minutes before completely wiping it off.

Cleaning Floppy Drives

There are several products available for cleaning your floppy diskette drives. Most of these use a disposable diskette made of a substance that will absorb a cleaning fluid. The diskette lubricated with a cleaning fluid is placed on the disk drive and the drive is accessed for a specified period.

With a clean working environment, you may want to clean your floppy drives once every six months to a year. In a less than ideal work environment (smoke, dust, old diskettes, improperly stored diskettes, etc.), you should clean your floppy drives more often.

The above was taken from UNCSN Computing News, University of Nebraska-Lincoln, Volume 2, Issue 5.

For more info call 1-800-472-3689.
The Growing Use Of Geotextiles

A relatively new concept in materials has emerged for the civil engineering community involved in soil and rock-related activities. Known as "geosynthetics", because they are used in soil and are synthetic, these materials include geotextiles (the largest group), geogrids, geomembranes, and geocomposites.

Geotextiles

The term geotextile refers to a fabric used in geotechnical engineering to improve performance or cost effectiveness of a human-made structure. These materials were introduced in the 1950's and their use has grown very rapidly in the last decade. Also called filter fabric, filter cloth, geotechnical fabric, engineering fabric, and geofabric; geotextiles are currently being made from fibers of polypropylene, polyester, polyethylene, nylon, polyvinylidene chloride, and fiberglass. Polypropylene and polyester seem to be the most popular. Generally, the synthetic fibers are made into a flexible porous fabric by standard weaving machinery or they are matted together in a random "nonwoven" manner. However, some fibers are also knitted.

The physical properties of geotextiles can vary considerably depending upon the additives used in the composition of the material and upon the methods of processing the molten material into filaments. "Wovens" may be monofilament or multifilament. The woven construction is the most expensive and tends to produce fabrics having relatively high strengths and moduli. Due to their high cost, wovens are used primarily for filtration and for special reinforcement applications. Nonwoven fabrics are less expensively produced by a bonding process or interlocking the fibers by mechanical, chemical, or solvent means. Although the knitting process is least expensive, knit fabrics are seldom used in geotextiles. Only two fabrics are currently manufactured this way—one is designed for unidirectional soil reinforcement and the other for temporary surface erosion protection.

Functions and Applications

There are at least 100 specific engineering applications for geotextiles. In any one application, the fabric may be performing one or more of six basic functions: filtration, drainage, screening, erosion control, reinforcement, or separation. These functions are explained below:

Filtration
This function involves the movement of water through the fabric. The geotextile substitutes for and serves the same function as the traditionally graded granular sand-and-gravel filter. This filter must allow the water to pass without significant build-up of hydrostatic pressure. A geotextile-lined drain trench along the edge of a pavement is an example of an application using geotextile material as a filter.

Drainage
Basically, all fabrics can work as drainage material, but to widely varying degrees. Geotextiles may be used in trench drains, blanket drains, and drainage columns next to structures as a substitute for granular material. Strip drains substitute for sand drains to accelerate the consolidation of fine-grained soils.

Screening
A geotextile can function as a screen by impounding particles suspended in surface fluid flow while allowing the fluid to pass through.

Erosion Control
The geotextile protects soil from erosion caused by water, wind, and rainfall. Geotextiles are often used in ditch linings to protect erosion.

Reinforcement

The geotextile can act as reinforcement by strengthening the performance of weak materials or structures. Geotextile-reinforced embankments and earth retaining walls are examples of this use of fabrics.

Separation
Separation is the concept of preventing two dissimilar materials from mixing so that the integrity and function of both materials can remain intact or be improved. The geotextile is most often used to prevent the mixing of fine soils and gravel. In construction of expedient haul roads over soft soil, fabric is placed over the soft subgrade and then gravel or crushed stone is placed on the fabric.

Sources of Information

Adapted from Mass Inter-change, Spring/Summer 1988, Baystate Roads Program, University of Massachusetts.
Road Business Index 1988-1989

The following is a listing of articles that have appeared in past publications of Road Business. Past articles may be ordered free of charge from the Technology Transfer Center by calling toll free 1-800-423-0060 or by using the mailer included in this newsletter.

Pavements

Asphalt Recycling: Knowing Your Options...Vol.3 No.2
Discusses different types of asphalt recycling and the benefits and advantages of each.

Quick and Easy Patching...Vol.3 No.2
Presents various pothole patching materials and gives contact information for further investigation of each.

Strive For A Pothole-Free Environment...Vol.3 No.2
Outlines the procedure for patching potholes correctly step-by-step, from marking to sealing.

Technical Innovations...Vol.3 No.2
Introduces a new device designed to eliminate the need for a squeegee in rubberized asphalt sealing operations.

Easy and Convenient Asphalt Tonnage Estimate...Vol.3 No.3
Gives suggestions on thicknesses of asphalt overlays.

Linseed Oil For Protection Of Concrete Structures...Vol.4 No.1
Directions for the use of linseed anti-spalling compound to prevent damage to old and new concrete.

Did You Know?...Vol.4 No.1
Looks at the effect of bacteria on the breakdown of asphalt.

Gravel Roads

On The Road In New Hampshire...Vol.3 No.4
Six towns explore a fabric solution to muddy gravel roads.

Installation Of Geotextiles On Gravel Roads...Vol.3 No.4
Selection and installation of the proper geotextile and aggregates for eliminating perennial boggy spots and trouble areas.

Winter Maintenance

Chutes Save Salt, Control Spreading...Vol.3 No.3
Compares the use of a chute made of PVC pipe as a salt spreader to the use of traditional spinners.

Taking the Mess Out of Snow Chains...Vol.3 No.3
Introduces a new compressed-air system for tire chains which rotates lengths of chain under the tires of trucks on snowy or slushy roads.

Salt And Sand For Winter Maintenance...Vol.3 No.4
Basic information and practical tips on how to use deicing chemicals and sand.

Did You Know?...Vol.3 No.3
Introduces the idea of SUPER SAND as a deicing agent.

On The Road In New Hampshire...Vol.4 No.4
Discusses a snow plow rally and some things that every snow plow operator should know.

Using Salt As A Deicer...Vol.4 No.4
Gives tips on the use of salt for snow and ice removal.

Salt And Highway Deicing...Vol.4 No.4
Questions and answers on ice control operations.

Base Pavement Level of Service...Vol.4 No.4
A valuable chart outlining winter road activities.

Safety and Liability

Check Roadway Safety When Vehicles Have Accidents...Vol.3 No.3
Suggests review of roadway safety on roads where vehicles have had accidents.

"To See or Not to See" Should Not Be the Question...Vol.3 No.3
Reports on an experiment using mirrors at intersections for better visibility.

A Serious Problem: Mailbox Supports...Vol.3 No.3
Types of mailbox supports and the danger of improper construction or placement.

Tort Liability And The Highway Agency...Vol.3 No.4
The categories in which the state of New Hampshire is sued in relation to highways, and measures to reduce exposure to tort liability. continued on p. 6
Sign Causes Suit...Vol.4 No.4
Story of a New Hampshire town found liable for a death due to a tree covered sign.

Design

Don’t Forget About Frost Heaves...Vol.4 No.2
Looks at designing protection against frost heaves into your roads.

Shoulder Reinforcement With Recycled Tires...Vol.4 No.4
An innovative approach for reinforcing narrow or eroded roadway shoulders.

AASHTO Updates Design Guide...Vol.4 No.4
A review of a valuable reference for town engineers and other officials involved in roadside features such as drainage, guardrail, sign supports, etc.

Computer

Has Your Computer Or Your Town’s Computer Been Infected With A Virus?...Vol.3 No.2
History of computer virus and tips on how to protect yourself from the danger it poses to your computer.

Once a Hard Disk is Infected...Vol.3 No.2
A summary of what to do in case of an infected hard disk.

Tips to Prevent Hard Disk Problems...Vol.3 No.3
Tips on organizing, reorganizing, and general safety in using hard disks.

All Computer Users In Transportation Should Know A Few Things...Vol.3 No.4
A quick review of three very good sources of computer software in transportation.

To Bay Or Not To Bay?...Vol.4 No.1
Keeping up with the rapid changes in computer hardware and software; deciding what you need.

Don’t Get Zapped...Vol.4 No.1
Learning to protect your computer from power surges and overloads.

McTrans--A National Microcomputer Technology Resource...Vol.4 No.3
Discusses the Federal Highway Administration’s Center for Microcomputers in Transportation, and gives membership information.

Other

Preventing Sexual Harassment Suits...Vol.3 No.2
Outlines the definition of sexual harassment and provides a checklist to highlight warning signs of potential problems.

Did You Know?...Vol.3 No.4
Looks at the book Killer Roads: From Crash to Verdict, which offers guidelines on the litigation of road accident cases.

On The Road In New Hampshire...Vol.4 No.1
Discusses the NH T² Road Surface Management System (RSMS), and the towns using it to save thousands of dollars a year in maintenance costs.

Highway Robbery: Your Ideas Count...Vol.4 No.1
A New Hampshire road agent’s idea to get back stolen road signs goes nationwide.

The “Highwayman”...Vol.4 No.1
The job of highway superintendent is very important, but often goes unrecognized and unappreciated.

Run-off and Erosion Control Guidelines for Highway Crew Leaders...Vol.4 No.2
Introduces a handbook on the subject of erosion control.

On The Road In New Hampshire...Vol.4 No.3
Outlines the many tasks of the Road Agents Association and the equipment demonstrations they provide.

The Easiest Job In Town!...Vol.4 No.3
The life of a road agent from the eyes of a road agent.

“NO HANDS” On The Level...Vol.4 No.4
How to take elevation readings when a surveyor’s tripod-mounted level is not available.

For information on any of these articles contact the Technology Transfer Center at 1-800-423-0060 or send in the attached mailer.
On The Road... continued from p. 1

in the New Hampshire area. Pat Boyle, a relatively new member of the NHRRA team is currently looking into different possibilities for marketing crushed glass. NHRRA is a non-profit association comprised of municipalities, businesses and individuals promoting sound waste management practices. Without cooperation on all levels resource recovery can become next to impossible. NHRRA does a good job coordinating the various parties required to make recycling work on the municipal level. For more information about the NHRRA glass project and the NHRRA in general you can call them at (603) 224-6996.

A new project now underway at the University of New Hampshire's Transportation Research and Computation Group is investigating how favorably crushed glass will act as a substitute for fine aggregate in pavements used on New Hampshire local roads. Although many test roads have been done with hot mix glass asphalt demonstrating that crushed glass can be a good alternative for fine aggregate (New York City has been using glass in their roads for a few years now),

Above: Instead of a town dump New London has a recycling center. All of the glass that’s collected is moved from here to the crushing operation.

Right: The uncrushed glass is stockpiled at the crushing site until there is enough material for about a day’s work of crushing. Using their current procedure New London can crush about 20 tons of glass per day.

Below: Recycling can save a town a lot of money and New London keeps its residents aware of progress at the recovery station. In 1989 the town was able to see a savings over $40,000. Not a bad price for garbage.

little as been done in the realm of cold mixes. One area that the Transportation Research and Computation Group is currently investigating is the use of glass aggregate in an emulsified asphalt mix. Cold emulsions are ideal for incorporating recycled materials and they appear to be an economical way to pave secondary roads.

Some of the minor problems that must be overcome when using glass as an aggregate include the need for specialized crushers, anti-stripping additives, and control over variations in the gradation of the aggregates. A few of the basic advantages of recycling glass for use in asphalt include a reduction of solid waste disposal, a reduced need for expensive and depleting virgin materials, and the fact that hot glass asphalt retains heat better and can be mixed at a lower temperature resulting in fuel savings.

We will have more information on the behavior of crushed glass in asphalt and its uses by the end of the summer—so stay tuned.
Welding, Cutting, And Heating With Oxygen And Fuel Gases

Welding may be one of the most dangerous jobs you have -- take the proper safety precautions.

In many maintenance operations there is a need to use oxygen and fuel gases to weld, cut or heat an iron object. The potential for serious injury exists when performing this task and no one should attempt it without proper knowledge and training. The proper handling, storage, and use of oxygen and fuel gases are very important in reducing the risk of an accident.

Know what gas you are using. Gases differ from each other in heat content, flammability, and safe handling requirements. Fuel gases generally used in gas welding are acetylene, natural gas and liquid petroleum (LP) gas, such as propane and butane.

The following is a list of DO's and DON'TS when welding, cutting, or heating and suggested safety precautions:

-- DO'S --

- Check the cylinder label to be sure it contains the proper gas. Read and follow all safety precautions on cylinder labels.

- Secure cylinders so they cannot be knocked over or pulled over. A safety chain should go around the tank and be used to secure the tank to the cart.

- Be sure that cylinders are secure when transporting them, and that other cargo cannot slide into them. The valve should always be closed during transport and the gauge removed or have protective covers in place.

- Have adequate ventilation wherever gas is stored, transported or used. This will help to prevent an accumulation of oxygen or explosive fuel gases.

- Use an approved pressure reducing regulator on a cylinder when using gases.

- Use the proper gas pressures recommended by the equipment manufacturers. Liquid petroleum gas regulators, natural gas regulators, and acetylene regulators are not interchangeable.

- Some acetylene cylinder valves are equipped with a hex packing nut. DO tighten the nut gently after closing the valve and then retest for leakage.

- If gas leaks from a cylinder with a closed valve, DO move it to an open place outside, away from any source of ignition, and notify the supplier immediately.

- Install an in-line check valve for both oxygen and fuel gas either at the gauge or the torch to prevent feedback or mixing of gases.

- Use a T-wrench or key for opening and closing a cylinder valve if it is not equipped.

- Store oxygen and fuel gas cylinders separately. A minimum clearance of 20 feet should be maintained or a 5-foot high noncombustible partition installed between closely stored oxygen and fuel gas.

- Store empty cylinders apart from full cylinders.

-- DON'TS --

- DON'T jump or drop the cylinder because the relief device or valve could rupture and explode the gas in the cylinder.

- DON'T connect an oxygen regulator to a cylinder of fuel gas, or vice versa.

- DON'T use pipe fitting compounds or thread lubricants for making connections.

- DON'T use or transport leaking cylinders or equipment. Attach a tag to the cylinder so no one else uses it and notify the supplier.

- DON'T tamper with the safety relief devices.

- DON'T open an acetylene cylinder more than 1 1/2 turns.

- DON'T let the recessed top of a cylinder become filled with water or used as a place to store tools.

- DON'T confuse oxygen with compressed air for breathing. Oxygen is not air!

- DON'T lubricate oxygen fuel gas equipment.

- NEVER allow oil, grease, or similar combustibles to come in contact with oxygen or oxygen fuel gas equipment.

- NEVER handle, store, or use cylinders with the valve on its side. The valve end should always be in the upright position.

- NEVER lift the cylinder by the protective cap nor lift it with slings.

- NEVER release fuel gas, where it might cause a fire or explosion (i.e. near other welding work, other sparks or an open flame).

The above was taken from Nuggets & Nibbles, Cornell Local Roads Program, October 1989
Tips for improving safety at road work sights

Check lists improve work zone safety for both workers and drivers

16-Point Inspection Guide For Field Personnel

1. Do Traffic control devices conform with the Traffic Control Manual?
2. Does traffic flow smoothly and safely?
3. Are workers safely protected from traffic?
4. Are provisions for pedestrians adequate?
5. Are equipment, materials, workers, and vehicles kept away from traffic?
6. Is advance warning appropriate to work in progress?
7. Is design and maintenance of the temporary bypass or detour adequate?
8. Is traffic protected from abrupt drop-offs?
9. Are temporary pavement markings used effectively?
10. Are old pavement strips obliterated?
11. Are traffic control devices properly positioned, in sound condition, and well maintained?
12. Are flag persons used as needed and performing well?
13. Are signs readable, and do they have proper reflectors?
14. Are signs covered or removed when out of use?
15. Are hazards properly shielded?
16. Are there adequate signs and barricades at the intersections?

8-Point Checklist for City Street Administrators

1. Establish ongoing coordination and communication with traffic police working in the jurisdiction.
2. Invite police to attend preconstruction conferences.
3. Invite operational commanders and supervisors to attend preconstruction maintenance conferences.
4. Invite road supervisors to all training programs on work zone requirements as specified in local, state, and national manuals, particularly the MUTCD.
5. Seek regular day and night patrols of all construction work zones.
6. Establish ongoing liaison between project engineers, construction engineers, and local officers.
7. Establish procedures for periodic command-level inspection of all construction sites to ensure adequacy of traffic control devices and traffic control.
8. Establish procedures by which discrepancies or deviations from the Traffic Control Plan and/or Manual can be reported to appropriate highway officials and police officials through joint communication.

Source: Adapted from TIP Wyoming T² and Arizona Public Safety Department

Two Years Latter And The Results Are Still Just As Impressive

Temple's gravel road continues to exceed expectations

Two years ago in Temple, New Hampshire, Tim Fisk, the town's road agent worked with the Road Agent Association and the Technology Transfer Center to test the use of geotextile fabric on gravel roads in our state. After the first winter the section of road with geotextile non-woven fabric was in excellent condition, but Tim felt that the Spring...
**DID YOU KNOW?**

Is controlling road ice without salt just a big fish story?

Antifreeze mechanisms of flounder and other salt water fish (found in northern climates) are being studied by Professor Thomas Cacchi of Virginia Tech under a research grant to determine if there is a viable alternative to road salt that is noncorrosive, biodegradable, and cost-competitive. The flounder’s protein chains prevent creation of ice crystals in fish cells down to at least 28 degrees F. Under the research project, Dr. Cacchi hopes to create an artificial version of the flounder’s antifreeze that will reduce the freezing temperature to 10 to 15 degrees F. Such an antifreeze might also have application as a deicer for airplane wings and may help keep citrus crops from freezing.

From *The Wheel*, Volume 4, No.2

**CDL Video Tapes Now Available!**

**VHS Tapes can help you pass your Commercial Drivers License Test**

Dave Walker, Road Agent from the town of New Market has “test driven” our CDL video tapes. In Dave’s words, “everything you need to know to pass the test is on these tapes. I’ve been loaning them to everyone that has to take the exam. and I’d recommend them to all towns.”

The Technology Transfer Center can either loan you a copy of these tapes for two weeks or you can purchase them on an extended play tape for $16.50. All video purchases will be sent to you within a one week period.

For more information please contact the T² Center at 1-800-423-0060.

**MUTCD Is A Must!**

MUTCD stands for Manual On Uniform Traffic Control Devices. It has been adopted by New Hampshire as a standard. The NHDOT has also written an addendum for this manual handling any conflicts that might result from certain RSAs or environmental factors (i.e. trees).

You can get a copy of the MUTCD by sending in $22.00 plus $5.00 shipping and handling to the following address:

ITE
525 School St
SW Suite 410
Washington, DC 20024-2729

You can get a copy of the NHDOT addendum by contacting:

Jim Colburn, Traffic Engineer
NHDOT
Bureau of Traffic
Sheep Davis Road
Concord, NH 03301-0483

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**TECHNOLOGY TRANSFER CENTER (T²C)**

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