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Retroreflectivity: Making Sure Signs Measure Up

by Paul J. Carlson, Ph. D., P. E., Texas Transportation Institute

What is Retroreflectivity?

While all surfaces reflect light, the surfaces of traffic signs use an optical phenomenon called retroreflectivity to reflect light from vehicle headlamps back toward the driver.

In general, the higher the retroreflectivity value of a sign, the better the sign returns light to the source. However, there are other factors such as viewing angle, headlamp aim, and driver characteristics that determine how bright the sign will actually appear to a driver. Therefore, it is important to check the performance of signs during both daytime and nighttime conditions.

Periodic Inspections Necessary

Over time, all retroreflective films will experience a loss in their performance. The sun's rays, moisture, and pollutants cause a substantial amount of the retroreflective deterioration. Also, loss of retroreflectivity can also occur from vandalism such as paint ball shots, gunshots, spray paint, etc.

Sign retroreflectivity can be evaluated by using one of the various retroreflectometers currently available or by nighttime windshield surveys. Regardless of the method used, each roadway should be checked at least once every two years. Desirably, each roadway would be checked annually.

Information and descriptions of the currently available retroreflectometers can be found at the following web sites:

- For the Impulse: **http://www.pwsglobalinc.com/prod04.htm**
- For the Retrosign: **http://www.flinttrading.com/retrosign.htm**
- For the 920 and 920SE: **http://www.advancedretro.com/**
- For the 920C: **http://www.gamma-sci.com/930C-retroreflectometer.htm**

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INSIDE:

Please pass this on to other interested parties in your office.

Illinois Department of Transportation

Illinois T² Has A New Program Manager

I would like to thank Willy Scheller for an excellent job in creating and building the Technology Transfer (T²) Program in Illinois. As most of you are aware, Willy retired on December 31, 2002 after serving as the T² Program's only manager for over a decade. Willy's efforts resulted in an excellent training program and extensive video/publication library for local agencies. Willy's experience and leadership will definitely be missed. However, Willy did pass much of his knowledge along to his dedicated staff - Amy Neale and Roy Williamson.

As the new T² Program Manager, I would like to tell you about my experience with the Illinois Department of Transportation (IDOT). In 1993, I started with IDOT as a Chemist with the Bureau of Materials and Physical Research's Chemistry Laboratory. In this capacity, I was responsible for testing all types of highway materials including traffic paint, bridge paint, reflective sheeting, cement, concrete and bituminous materials. Starting in 1996, my main responsibility was setting up the department's PG binder testing equipment for the implementation of superpave.

In October 2000, I was promoted to the Specifications & Procedures Specialist in the Bureau of Local Roads & Streets' Policy Unit. Besides issuing ISPs and drafting policies for local agencies, I also reviewed legislation, managed the BLR forms, started an electronic subscription service, and placed the Circular Letters on the web.

I look forward to the unique challenges and excellent opportunities that I will face managing the T² program. I encourage you to actively participate in the program by attending training classes, requesting videos and publications, and contacting T² with any technical questions. In 2003, the T² program has three primary concerns – reauthorization of the federal transportation bill, providing continuing education units/professional development hours for the training program, and updating the video/publication library.

The IL T² program has been funded by FHWA in both ISTEA and TEA-21 transportation bills. As a minimum, IDOT is required to match FHWA funds dollar for dollar. However, in past years, IDOT has funded between 50-60% of the program. The United States Congress is in the process of reauthorizing TEA-21 as TEA3. In order for IL T² to continue to provide local agencies a high level of service, it is imperative that the program continues to receive funds from the federal government. I encourage you to contact your United States congressmen in support of this program. For more information on TEA3 go to www.tea3.org.

The IL Department of Professional Regulation has started requiring licensed professional engineers to fulfill continuing education unit (CEU/PDH) requirements. T² has assigned CEU/PDHs to all eligible training classes. In this newsletter, you will find the training survey. The survey is your opportunity to request training in your area. The training program will be developed directly from responses to this survey. The training program provides an economical solution to providing your engineering staff with CEU/PDHs.

Kevin Burke

Finally, T² is trying to modernize our video/publication library. Part of the modernization will look at replacing older videos with more recent productions. Certain publications will be made available for download off the internet. We also hope to provide more digital videos – via DVD and/or the internet. Modernization does not mean that old technologies will be abandoned. Local agencies will still be able to borrow videotapes and request hard copies of publications. The goal is to provide more options for the 3000+ local agencies that use our services.

Please do not hesitate to contact the T² staff with any questions.

Thank You.

Kevin Burke

Kevin Burke
Illinois T² Program Manager

SAFETY CORNER

New High Visibility Garments to Improve Safety for Highway Workers

by Jim Schoenherr, Illinois Department of Transportation, Bureau of Operations

The Illinois Department of Transportation is now issuing a new style vest for employees involved in field operations. The new garments were developed after years of study of a variety of materials and colors. Several groups of both IDOT and industry representatives have been involved in this process. Most recently, the Highways Safety Council has been field testing vests and fine tuning the final purchase specifications. Field trials utilizing feedback from field personnel have been an important factor in the development of the new design.

Visibility was an important factor in the redesign of the vest. A study of truck drivers' opinions conducted by the University of Illinois at Urbana Champaign for IDOT indicated that 32 percent of the drivers surveyed had problems seeing flaggers. With the increase in the amount of bright orange devices and reflective sheeting's used in work areas, the standard orange mesh flagger vest had a tendency to blend into the bright orange of the devices behind it.

A review of new colors being produced and used by the industry nationwide indicated that two colors provided improved visibility under most conditions. Solid fluorescent yellow/green provides the best visibility and contrast, but has a tendency to blend into yellow fall foliage. Solid fluorescent orange also provided improved visibility over the old orange mesh, but still has a tendency to blend into work zone devices. To cover all field conditions, a bicolor vest was developed. Approximately 60 percent of the surface of the vest consists of the solid fluorescent yellow/green background material. The remaining 40 percent of the surface of the vest is fluorescent orange stripe with reflective material. The intent of this combination is to provide the best visibility and contrast with any background condition that our employees may encounter.

Comfort was also an important issue with the new garment. With the new material being solid instead of mesh, there was concern of it being hotter. A breathable background material is being used and mesh side vents have also been added to improve air flow. We will continue to investigate new materials as the industry develops them.

In 1999 the American National Standards Institute and the International Safety Equipment Association issued the American National Standard for High-Visibility Safety Apparel, ANSI/ISEA 107-1999. This standard defines specific requirements for safety garments including, color, color fastness, reflectivity, minimum areas of high visibility material, cleaning requirements and labeling. The U.S. Occupational Safety and Health Administration (OSHA) refers to standard as a way for employers to comply with their requirement to provide enhanced visibility garments. The new IDOT vests meet the ANSI/ISEA 107-1999 requirements for Class 2 garments. At the request of several districts the vest also has a tear-away feature.

A statewide purchase contract is currently available for IDOT offices to obtain the new vests. Because of the budgetary commitment required for implementation, these garments are being phased in during 2003. All personnel flagging or performing nighttime activities are required to wear the new vest. Other Division of Highways' personnel may use the new type garment sooner if they desire.

A similar requirement will soon be required for flaggers on state construction contracts. As of the April 25, 2003 letting, all contracts will contain a special provision requiring flaggers to wear a fluorescent orange and/or fluorescent yellow/green vest meeting the ANSI/ISEA 107-1999 requirements for Conspicuity Class 2 garments.

Retroreflectivity: Making Sure Signs Measure Up

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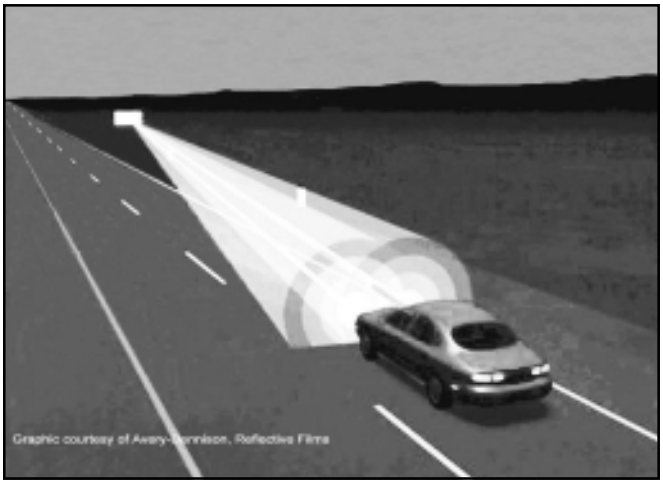
The selection of retroreflectometers depends on the agency's needs and budget. There are distinct advantages and disadvantages to each of the devices that should be considered before an agency decides to make a purchase.

There are at least two other viable methods to evaluate retroreflectivity. One is to develop a sign management system and replace signs at certain intervals depending on how long the retroreflective sheeting is expected to remain effective. Another method is conduct nighttime visual inspections.

Nighttime Visual Inspections

Nighttime visual inspections are probably the easiest and most commonly used way to check retroreflectivity. Research has shown that trained observers and sign maintenance personnel can adequately determine which signs need to be replaced. The following guidelines can be used when conducting a nighttime visual inspection:



1. The inspector must be knowledgeable about signing, and preferably should be at least 50 years old.

As drivers age they need more light to see and their visual acuity decreases. In general, starting at the age of 20, a driver needs twice as much light every thirteen years. Therefore, a 72-year-old driver needs 16 times the amount of light that a 20-year needs (everything else being constant). This means that typically a young inspector will reject fewer signs than an older inspector. FHWA's minimum retroreflectivity values are based on accommodating drivers at least 55 years old.

2. During inspections, a sport utility vehicle or pick-up truck should be used.

Retroreflectivity reflects light back to its source - - the headlamps. That means that signs look brighter the closer your eyes are to the headlamps. It follows that the inspection vehicle should be either an SUV or pick-up truck because the drivers' eye is at a greater distance from the headlamps. FHWA's retroreflectivity values will be based on the averaged dimensions of the top 10 selling SUVs, pick-up trucks, and minivans.

When using a pick-up truck, it's important that no heavy objects be located in such a manner that the headlamp beam pattern is altered. Loads should be distributed evenly for nighttime inspections.

3. The inspection vehicle must have properly aimed headlamps.

One of the most significant factors relating to how bright a sign looks at night is how much light is directed toward the sign. Since the light is coming from the vehicle headlamps, it is critical that the headlamps of the inspection vehicle be properly aimed. The survey vehicle should be checked by a qualified mechanic to make sure the headlamps are aimed properly (on low-beam). For documentation purposes, a record of the headlamp check should be made part of the sign inspection records.

It's also important that the mechanic check the voltage of the vehicle while running (at the battery terminals). Headlamp output is directly correlated with operating voltage. While the voltage will increase slightly during highway speeds as compared to idling, a good check is to have an idling voltage between 12.5 and 14 volts.

Both the headlights and the windshield must be clean during the inspection.

4. Use low beams only.

Most nighttime driving is done with low beams. It is important that nighttime inspections be conducted with low-beam headlamps only. Inspectors should not flash their high-beam lights at marginal signs.

5. Document the entire procedure.

The development and subsequent introduction of minimum retroreflectivity values will undoubtedly increase an agency's liability concerns. It is critical that an agency be able to demonstrate that they are implementing the minimum

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retroreflectivity values to reasonably ensure nighttime visibility. Documentation is critical.

Types of recording systems include the following:

- **Passenger recorder -** This method involves two personnel, which adds costs but also adds another set of eyes. The passenger records the signs that need attention. The method utilizes pen and paper and the forms are maintained for future use.
- **Tape recorder** - As the inspector drives down each road, he/she makes narrative comments about the signs. The level of detail could vary from just mentioning those that need attention or it could include all signs, regardless of their condition. The tapes are maintained for future use.
- **Video recorder** - A video in the vehicle is perhaps one of the most efficient ways to document a nighttime inspection. The inspector should supplement the video by using the audio recording capabilities and recording his/her assessment of the signs. The videos are maintained for future use.

- **Combinations and other methods.** There are numerous combinations to these basic approaches. All methods of recording require that the inspector be able to recognize a deficient sign. One means of accomplishing this is as follows:
  - The agency would assemble a set of signs that barely satisfy threshold conditions of acceptability (minimum numerical retroreflectivity values to be referenced by FHWA). A retroreflectometer could be used to measure the retroreflectivity of the selected signs.
  - Before each nighttime inspection, the inspector would set these signs up in their maintenance yard and evaluate them with the inspection vehicle. This procedure allows the inspectors to train, or "calibrate" their eyes to identify threshold conditions of acceptability. (And, during the inspection, the dome light should not be used, as this could impact the inspectors' nighttime visibility. Instead, they should use small flashlights with red, green, or blue lenses, or they should use pens with small lights inside.)

6. Safety is of utmost importance during the inspection.

One of the advantages of the nighttime visual inspection method is that it minimizes the need to stop along the side of a road to evaluate a sign. The inspection should be conducted at normal highway speeds. However, if there is a need to take another look at a particular sign, the inspector should turn around and drive past the sign at highway speeds once more. If there is still question about a feature of the sign other than retroreflectivity, the inspector should make a note and revisit the sign location during the day.

A general rule-of-thumb for conducting nighttime sign inspections is, "When in doubt, throw it out." It is also important to note that nighttime sign inspections should not be conducted when water has condensed on the sign surface or during rain or fog conditions.

(Reprinted with permission from Texas LTAP's Lone Star Roads, Jan.-Feb. 2003.)

Ditch Basics

Marisa DiBiaso, Project Assistant, Technology Transfer Center, University of New Hampshire

Water in road bases and subgrades is a destructive force. By undermining the road surface's ability to support traffic, it leads to distresses such as alligator cracks and potholes. Properly constructed ditches allow water to drain not only from the road surface, but from subsurface levels as well.

However, ditches also catch sediment in the runoff from gravel roads and shoulders, as well as from their own side slopes and channels. Loose vegetation and debris wash in from the right of way. These can quickly clog a ditch, causing it to impound water instead of carry it away. Resulting "ponds" then block any further subsurface drainage. Water may even seep from the ditch back into the road's subgrade and base. Furthermore, a clogged ditch could flood the road during a downpour, with road-killing effect. Therefore, regular maintenance is as important as proper construction.

This article will cover the basics of ditch maintenance and construction: inspection and removal of debris, shape, slope, depth, lining, and vegetation. It will conclude with some repair guidelines.

Inspection and Cleaning

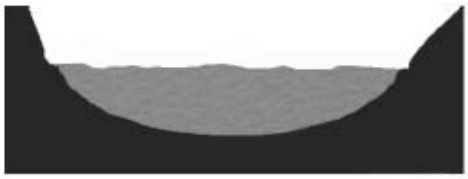
Regularly inspect and remove debris from ditches. As you do so, ask the following questions to help identify further maintenance and construction needs:

- Is the ditch free of obstructions?
- Could debris-control devices be used?
- Does the ditch have a clear outlet?
- Is the ditch deep enough to intercept subsurface water and thereby drain the subgrade?
- Is the ditch broad enough to minimize erosion of its sides and accommodate flow?
- Is the longitudinal slope uniform; that is, free of high or low points to minimize ponding?
- Is the slope adequate to encourage slow, steady flow?
- Is there any erosion?
- Is a lining needed, or does a lining need repair?

Shape

Road crews construct and maintain ditches in three cross-section shapes:

- **Parabolic (round bottom).** Best in terms of long-term cost and efficiency, this shape affords about the same capacity as the trapezoidal, with less erosion. Sides accommodate vegetation, which further reduces erosion. It is usually the most difficult and expensive to make.



A parabolic or round bottom ditch

- **Trapezoidal (flat bottom).** While this shape takes more time and money to make than the triangular, it slows water and reduces erosion better, requires less maintenance, and affords more capacity.

A trapeziodal or flat bottom ditch

- **Triangular (V bottom).** Of the three shapes, it is the most easily made and occupies the least roadside area, but it requires the most maintenance, has the least capacity, and is the most susceptible to erosion.

A triangular or V bottom ditch

Slope

The longitudinal slope affects velocity of water flowing in the ditch. If the longitudinal slope is too steep, the resulting swift flow will erode the channel. If the slope is too close to level, the resulting lazy flow may allow water to collect in the ditch and perhaps infiltrate the subgrade and

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Ditch Basics

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Ditch Linings Suitable for Various Flows

Type of Lining	Flow Velocity (max.ft./sec.)
Soils and Stone	
Rip-rap sides and bottom	15-18
Clean Gravel	6-7
Silty Gravel	2-5
Clean Sand	1-2
Silty sand, clay	2-3
Clayey sand, silt	3-4
Turf and Plants	
Average turf in erosion-resistant soil	4-5
Average turf in easily eroded soil	3-4
Dense turf in erosion-resistant soil	6-8
Brushy sides with gravel bottom	4-5
Dense weeds	5-6
Asphalt and Concrete	
Concrete sides with gravel bottom	8-10
Mortared rip-rap	8-10
Concrete or asphalt sides and bottom	18-20

road base. To ensure appropriate flow, the longitudinal slope should be 1 percent, a gradual drop of 1 foot along every 100 feet of ditch. The slope should never be less than 0.5 percent. The maximum longitudinal slope for an unlined ditch is 5 percent. If the slope exceeds 5 percent, the ditch should be lined to prevent erosion, as described later in this article.

Each cross slope (side slope) of a ditch that has earthen sides should drop 1 foot for every 2 to 4 feet of its cross section. That is, it should have a drop-to-run ratio of between 1 to 2 and 1 to 4.

Depth

To keep water out of the road base and subgrade, the ditch bottom should be well below the road's base course. A ditch depth of 18 inches is usually sufficient, but the ditch may have to be deeper if the adjacent right of way and terrain are shedding water into the ditch.

A few other considerations: The distance between cross culverts or ditch outlets may also influence ditch depth. Inspection will indicate whether the depth is appropriate, or whether culverts or outlets should be installed. Keep in mind that ditches are often too deep. Lining a deep ditch is difficult, and the added depth makes it more susceptible to cross-slope erosion. Deep ditches also pose a potential hazard to motorists, especially on roads that have narrow shoulders.

Lining

Erosion of ditch sides and channels, as well as of the roadside environment, creates sediment that is deposited in ditch channels and in the collection points that they lead to. Excessive erosion of ditch sides can weaken the sides of the road itself. Runoff from gravel roads also contributes sediment. Deposition of sediment can diminish longitudinal ditch slope to the point that water backs up. The greater the erosion, the greater the need for ditch maintenance.

Lining of a ditch is the most common way to prevent erosion. Linings of sides and channels can be created from soils, stone, turf, plants, asphalt, or concrete. Geowebs can serve to reinforce the natural materials. Materials depend on velocity of flow that the ditch must accommodate. The table shows materials appropriate to various velocities.

Engineers use a similar table when designing waterways. Road crews can use it as a guide. If a lined, well maintained ditch is eroding, crews should apply a lining meant for a faster flow. If problems persist, consult a qualified engineer.

Vegetation

In addition to minimizing erosion in ditches that accommodate relatively slow velocities of flow, vegetation filters pollutants from runoff. Guidelines for lining ditches with vegetation include:

- Establish vegetation before erosion begins.
- Distribute seed, mulch, and, where necessary, fiber mats immediately after any ditch maintenance or repair of storm damage.
- Fertilize, if appropriate, to speed growth, but avoid excessive fertilization, which can negatively affect the quality of both runoff and water that seeps into the ground.
- Mow to control weeds and woody vegetation, but not so close that you reduce the vegetation's ability to disperse rain, slow and absorb runoff, and hold soil.

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ERI II at IDOT– This Too Shall Pass

by Teresa Price, P.E., Local Policy Engineer, Bureau of Local Roads and Streets

Once again, as in 1991, the General Assembly has passed and the Governor has signed a bill that allows state employees to purchase years of service and age as an Early Retirement Incentive (ERI). With the 1991 ERI, 800 IDOT employees retired out a total work force of 7,500 (11 percent). This year's program, known as ERI II, allows a segment of state workers to buy up to five years of service and age to enhance their retirement benefits and retire early.

Statewide, there are 20,000 out of 60,000 employees eligible for ERI II. Within the Illinois Department of Transportation (IDOT), there are 2,100 out of 6,900 employees eligible for ERI II. As this article is being written, the forecast for December 31, 2002 shows a total of approximately 1,200 employees who will retire. Of that number, 500 are IDOT Highway Maintainers. There will also be 100 Civil Engineers, 200 Engineering Technicians, and 400 additional employees who will take advantage of ERI II. Overall, the department will lose approximately 16 percent of its employees - more people out of a smaller base than 1991.

Highway Maintainers comprise almost 50 percent of those employees retiring and they are retiring at a critical time of year. As a result, the department chose to make hiring their replacements top priority to ensure snow and ice route coverage for the beginning of the new year. To date, the department has hired 400 Highway Maintainers that will be trained and ready for action at the beginning of the year. For engineering replacements, the department has committed to advance-hiring for 100 entry-level positions. These slots will be filled by college graduates by the end of 2002. The department has also allowed advanced posting of those soon-to-be vacated positions deemed critical. This was done for the purpose of cross training to ensure a smoother transition. All other internal promotional opportunities have continued as before. Currently there have been several in-house promotions that have taken place, and many more are yet to come. Many bureaus are experiencing a secondary blow from ERI II as their employees seek opportunities for career advancements made available through individuals retiring. As a result, many bureaus will be in survival mode and functioning slower as new staff is being trained.

The major difference between the impacts of ERI I and ERI II is the program size. In 1991 the annual construction program size was $1 billion, while in 2002 the department has successfully accomplished a $2.3 billion program and faces the same program level this year. Maintaining this size program while recovering from the losses of ERI will be one of the greatest challenges facing the department. As a result, there will need to be changes in the way the department does business in the near future. Yes, the department will once again have to do more with less experience and lower staffing levels. However, there will not be a change in the level of service and safety the department is committed to providing to the motorist traveling the highway system of Illinois.

We applaud those who have retired for their level of commitment and service and wish them the best. Looking ahead, the department is also very confident in the ability of its staff to meet the challenge as it did in 1991. ERI II will result in once-in-a-lifetime opportunities for those employees who are left behind – those who will weather the storm knowing that this too shall pass.

ERI Impact on District Bureau of Local Roads & Streets

District	Employees Lost	Employees Replaced
1		
2	3	2
3	2	1
4	3	1
5	4	2
6	4	1
7	5	4
8	1	1
9	2	1

Most District Bureaus expect secondary impacts from people leaving BLRS to fill vacancies elsewhere.

Ditch Basics

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Repair Guidelines

Road rehabilitation and reconstruction are expensive, and some municipalities omit accompanying ditch repair to save money. Some ignore ditches in minor projects, too. As noted in the opening, poor drainage leads to rapid deterioration of roadways. A little extra spent on ditches now will save you an expensive road repair later. Ditch repair should be included in all road repair projects.

Schedule routine repair every five years. Poorly shaped, sloped, or lined ditches require attention more often. To repair ditches in a five-year cycle, divide municipal roads into five areas, and address one area each year.

Repair begins with the regular inspection and cleaning noted at the opening. Inspection and cleaning in the fall allow for a clear view of ditch conditions, and repair plans can be formulated during the winter. Repair should produce ditches with appropriate shape, slope, depth, and lining, according to these guidelines:

- The most efficient and effective ditches have round or flat bottoms (parabolic or trapezoidal cross sections). A backhoe or excavator most easily constructs such shapes. If a grader is used, the wheel should be run in the ditch.
- The ditch bottom should be compacted.
- The longitudinal slope should remain as uniform as possible; so should the cross-section slopes.
- The ditch should immediately be seeded, mulched, and covered with a fiber mat to establish vegetation, or another appropriate lining should be applied immediately.

Debris, erosion, and sediment degrade the performance of ditches. Ditches must be regularly inspected, cleaned, and repaired.

(Reprinted with permission from the University of New Hampshire, Road Business Newsletter, Winter 2000.)

Pavement Preservation Guide Released

The Foundation for Pavement Preservation (FP^2), of which the Asphalt Recycling & Reclaiming Association (ARRA) is an enthusiastic supporter, recently published its long-awaited "Pocket Guide to Asphalt Pavement Preservation." The publication, available free-of-charge, defines various pavement conditions and suggested treatments, provides a pavement rating form for field survey use, lists the benefits of the technology and practice of Pavement Preservation, and articulates the actual steps to follow in starting such a program.

Pavement Preservation is briefly defined as a planned system of treating pavements at the optimum time to maximize their useful life, thus enhancing pavement longevity at the lowest cost. Research has shown that for every dollar spent on pavement preservation, state departments of transportation save at least six dollars in future road rehabilitation and reconstruction costs – a phenomenal productivity ratio that deserves attention.

FP^2 and its public and private sector partners have explained that the key to optimized pavement life is the application of the "right treatment, to the right pavement, at the right time."

"The Pocket Guide will be of use to every state or local agency charged with managing and maintaining pavements," says FP^2 President Bill Ballou. "It is a quick guide to pavement preservation treatments and their use in the field." The brochure was adapted by Federal Highway Administration (FHWA) and FP^2 staff from a circular first developed by Koch Pavement Solutions, Wichita, KS.

For copies of the Pocket Guide to Asphalt Pavement Preservation, contact Melinda Bridges, Executive Director, Foundation for Pavement Preservation, 8201 Greensboro Drive, Suite 300, McLean, VA, 703-610-9036, fax 703-610-9000, e-mail: info@fp2.org.

(Reprinted from the Asphalt Recycling & Reclaiming Association Newsletter, 2003 No. 1)

The ADA and Transportation: Improving Safety & Access on Public Rights-of-Way

For the more than 54 million Americans with disabilities, transportation is a vital link to participating in all aspects of society, including work, commerce, and leisure activities. The U.S. Department of Transportation is committed to carrying out the 1990 Americans with Disabilities Act (ADA) and building a transportation system that provides equal access for all persons. As part of this effort, the Federal Highway Administration (FHWA) is working with the Access Board, a Federal agency that focuses on accessible design, to produce guidelines that cover access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, parking, and other components of public rights-of-way.

FHWA is the lead agency in ensuring that access for persons with disabilities is provided wherever a pedestrian way is newly built or altered, and that the same degree of convenience, accessibility, and safety available to the general public is provided to persons with disabilities. The Access Board and FHWA are active partners in fulfilling this mission.

In 1992 and 1994, the Board proposed guidelines for public rights-of-way. Due to comments it received, the Board decided to coordinate with the transportation industry and State and local governments on the rulemaking process. This effort led to the development of an outreach and training program on accessible public rights-of-way, and in 1999, the Board chartered an advisory committee to develop recommendations on access guidelines. The committee's recommendations are contained in a report, Building a True Community, which was released in January 2001. The report provides criteria for sidewalks, street fixtures and furnishings, street crossings, vehicular ways, parking, and other components of public rights-of-way.

The U.S. Department of Transportation is committed to carrying out the 1990 Americans with Disabilities Act (ADA) and building a transportation system that provides equal access for all persons.

In June 2002, the Board released draft guidelines based on the committee's recommendations. The draft guidelines focus on answering questions pertaining to conditions unique to public rights-of-way, including various constraints posed by space limitations at sidewalks, roadway design practices, and terrain. Issues that often require additional guidance, such as access for blind pedestrians at road crossings, wheelchair access to on-street parking, and the construction of work zones that are detectable to a blind pedestrian, are also covered.

The Board is now preparing a proposed rule based on a review of the public comments received. The proposed rule is expected to be available for public comment in Spring of 2003.

"There is a lot to still be learned about the ADA and how it applies to public rights-of-way, but it's clear that the ADA is a tool that, through proper application, will help provide an equitable and safer lifestyle for all Americans," says Barbara McMillen of FHWA's Office of Civil Rights.

The draft guidelines and supplementary information can be found on the Web at www.access-board.gov/rowdraft.htm. Building a True Community is available at www.access-board.gov/prowac/commrept/index.htm. Copies of the documents can also be obtained by contacting the Access Board at 202-272-0080 (TTY: 202-272-0082). Alternative formats are available upon request.

Additional guidance can be found in two FHWA publications: Designing Sidewalks and Trails for Access, Part I (Publication No. FHWA-HEP-99-006) is available online at www.fhwa.dot.gov/environment/bikeped/access-1.htm, while Part II (Publication No. FHWA-EP-01-027)of the document can be obtained from the FHWA Research and Technology Report Center, 301-577-0818 (fax: 301-577-1421). For more information on the ADA and the proposed design guidelines, visit the Access Board's Web site at www.access-board.gov. For more information on FHWA's work to implement the ADA, contact Barbara McMillen at FHWA, 202-366-4634 (email: barbara.mcmillen@fhwa.dot.gov).

(Reprinted with permission from Federal Highway Administration's FOCUS Newsletter.)

We Need Your Help . . .
It's Time to Plan the 2003-2004 Training Program

The Bureau of Local Roads and Streets' Technology Transfer Center is soliciting **local agency** interest in classes for the October 2003 to April 2004 training program. Please look over the list and indicate those classes of interest to you or your personnel by filling in the blank with an approximate number of attendees your agency would send if the classes were available in your area. This solicitation will be used by the Center in scheduling the 2003-2004 training program. Every effort will be made to locate specific classes in areas showing the most interest. Classes lacking in interest will be dropped from this year's schedule.

Please complete this class interest survey and mail or fax it to the Center at (217) 785-7296 by **April 19, 2002**. If you have questions regarding class content, please call the Center at (217) 785-2350.

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	Approximate Number		Approximate Number
Backhoe Safety (1/2 day)	_____	Pavement Construction Inspection (3 days)	_____
Bridge Construction Inspection (2 days)	_____	Pavement Maintenance (1 day)	_____
Bridge Inventory Documentation (1 day)	_____	Rehab of Streets & Highways Seminar (1 day)	_____
Bridge Piling (1 day)	_____	Small Drainage Structure Const. Insp. (2 days)	_____
Bridge Repair (1 day)	_____	Snow & Ice Control (½ day)	_____
Bridge Safety Inspection (1 day)	_____	Street Sweeping (1 day)	_____
Confined Space Awareness (1/2 day)	_____	Structure Info & Management Systems (SIMS) (1day)	_____
*Culvert Hydraulics (1/2 day)	_____	Surveying I-Beginning (3 days)	_____
Documentation (2 days)	_____	Surveying II-Intermediate (4 days)	_____
Erosion Control (1 day)	_____	Surveying III-Construction Staking (3 days)	_____
Flagger Training (1/2 day)	_____	Surveying IV-Map GPS & St. Pl. Coord. (2 days)	_____
Hazardous Material - First Responder (1 day)	_____	Team Building (1 day)	_____
*HEC-RAS (2 days)	_____	Traffic Signal Maintenance (1 day)	_____
Highway Jurisdiction/Transfers (1 day)	_____	Trenching & Shoring Safety (½ day)	_____
Highway Signing (1 day)	_____	Work Zone Safety (1 day)	_____
Highway Engineering Principles (1 day)	_____	Understanding Specifications (5 hours)	_____
MFT Accounting and Auditing (1 day)	_____	Urban Storm Mitigation/Tree Damage (1 day)	_____
OSHA 10-Hour General Industry (1½ days)	_____		

Other classes you would like to see offered and number of potential attendees from your agency.

_____ _____ _____ _____

_____ _____ _____ _____

*Culvert Hydraulics and HEC-RAS are computer programs offered only in Springfield.

Contact Person _____ Agency _____

Phone Number _____ Fax Number _____

Illinois Interchange

The Technology Transfer (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration and individual state departments of transportation. Its purpose is to interchange the latest state-of-the-art technology in the areas of roads and bridges by translating the technology into terms understood by local and state highway or transportation personnel.

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