University of Connecticut
School of Engineering

Connecticut Transportation Institute
Technology Transfer Center

Technology Transfer

Vol. 23 No. 1 February 2007

Inside This Issue...

Congratulations Class of 2006!

The Connecticut Transportation Institute Technology Transfer Center recognized 71 transportation professionals receiving their Connecticut Road Master and Connecticut Road Scholar program certificates on September 28th. Some 100 certificate recipients and their guests enjoyed a breakfast reception at the University of Connecticut main campus in Storrs. The Road Master and Road Scholar programs consist of required and elective workshops that provide participants with knowledge-based and skills-based training for road management activities.

Mary McCarthy, Technology Transfer Center training coordinator, publicly acknowledged each recipient as part of the ceremony. Federal and state transportation managers congratulating the group included Cheryl Malerba, ConnDOT Director of Training and Staff Development and Brad Keazer, FHWA Division Administrator. Technology Transfer Center Advisory Committee chair, Fred Thumm and State Senator Tony Guglielmo also congratulated the assembled group.

The occasion was also used to announce the co-winners of the 2006 Creative Solutions Award. On hand to receive their plaques were Bill Taylor from East Hartford and Dwight Ryniewicz of Woodstock. East Hartford won based on their winter operations program that eliminated the use of sand for snow and ice control. Woodstock's wooden "V-Plow" for plowing snow on gravel roads also received the award.

2006 Road Masters

David Bogue
Town of Ledyard

Tom Bunce
CT Dept of Transportation

William Casner
Town of West Hartford

Roy Cavanaugh
Town of Watertown

Michael Cei
Spectrum Engineering Group

Michael Cheever
Town of West Hartford

Glenn Clark
Town of Thomaston

Roderick Coleman
CT Dept of Transportation

Travis Comeau
Town of Groton

Lorenzo Conyers
Town of Groton

Jeremy Cooper
Town of Glastonbury

Keith Cooper
CT Dept of Transportation

John Cox
City of New Haven

Joseph Curioso
Town of Stonington

Dennis Deslandes
Town of Ledyard

Nick Duva
CT Dept of Transportation

Richard Gallacher
Town of Essex

Charles Godfrey
Town of Sharon

Richard Gogliettino
City of New Haven

Lloyd Gray
Town of Ledyard

Tymothy Gray
Town of Ledyard

August Grazuna
CT Dept of Transportation

Michael Hoagland
Town of Ledyard

Daniel Jacobsen
Town of South Windsor

Michael Jones
Town of Ledyard

Howard Joray
Town of Goshen

Barry Julian
CT Dept of Transportation

Alfred Landwehr
Town of Redding

Eric Lees
CT Dept of Transportation

Brian Lefort
Town of West Hartford

Walter LeGeyt
Town of Canton

Ray Macolino
CT Dept of Transportation

Brian Martin
Town of Ledyard

James Martin
Town of Ledyard

Ralph Michaud
Town of Ledyard

Andrew Morrill
CT Dept of Transportation

Technology Transfer

Published by the:

Connecticut Transportation Institute
Technology Transfer Center

Phone: 860-486-5400
Fax: 860-486-2399
Web: www.t2center.uconn.edu

Supported through a cooperative effort of the Connecticut Department of Transportation and the Federal Highway Administration's Local Technical Assistance Program (LTAP) to provide information on the latest transportation technology to Connecticut's state and local government officials.

Al Morsch
City of Bristol

Georgte Noewatne
Town of Cheshire

Leonard Norton
Town of East Windsor

Robert Paradise
Town of Redding

Stephen Petrello
CT Dept of Transportation

Michael Preble
Town of Ledyard

Kenneth Rulnick
CT Dept of Transportation

Dwight Ryniewicz
Town of Woodstock

David Sabourin
Town of Killingly

Steven Sartirana
CT Dept of Transportation

John Schreiner
CT Dept of Transportation

Michael VanNess
CT Dept of Transportation

Todd Wakefield
CT Dept of Transportation

Leo White
Town of Woodstock

Sidney Young
Town of Griswold

Guy Young
Town of Ledyard

2006 Road Scholars

Russell Arnold
Town of Farmington

Donald Bourdeau
Town of Montville

Leon Clough
Town of South Windsor

Steve Cowperthwaite
City of New Britain

Frederic Curtin
Town of Cromwell

David Eaton
Town of Union

Donald Foyer Sr.
Town of Orange

Patrick Hackett
Consultant

Mike Hurlburt
Town of South Windsor

Scott Lappen
Town of Windsor Locks

Edwin Lieberman
Town of Orange

Kevin Munson
City of Meriden

Mark Owens
Town of South Windsor

John Petruniw
City of New Britain

Daniel Primmer
Town of Portland

Dave Somers
Town of New Milford

Melvin Stead
Town of South Windsor

Richard Theriaque
Town of Windham

Andrew Tierney
Town of Hebron

George Wallace
City of Bristol

Technology Transfer Center Honors Second Annual "Creative Solutions Award" Winners

The Technology Transfer Center bestowed the Connecticut municipalities of East Hartford and Woodstock the 2006 awards in the second annual "Creative Solutions Award Program." The winners were announced on September 28 at the Center's annual graduation ceremony in Storrs.

The program was created by the Technology Transfer Center to recognize and share innovations designed by local government to solve local transportation related problems. The Connecticut Transportation Institute is part of the School of Engineering at the University of Connecticut.

East Hartford's public works department revamped their winter snow and ice management practices to eliminate the use of sand in their winter operations. East Hartford adopted an anti-icing method utilizing pre-wetted road salt to provide for "bare pavements" to the citizens. Benefits include significantly reduced cost of street sweeping and storm drain cleaning, reduced water and air pollution from fugitive winter sand and improved appearance to the community during the winter and spring months.

The Town of Woodstock placed a wooden, snow "V-Plow" into service for the 20 plus miles of gravel roads maintained by town crews. The unique plow design prevents damage to the gravel surface during winter operations such as the removal of the road crown and the pushing of gravel into open drainage ditches. Material and labor costs are greatly reduced during the spring reconstruction of the gravel roads due to the limited damage from winter plowing.

Creative Solutions Award winners Dwight Ryniewicz (left) and Bill Taylor (center) with Technology Transfer Center Advisory Committee chairman Fred Thumm.

Submissions to the "Creative Solutions Award Program" were viewed by a panel of judges using the criteria of safety, cost-savings, inventiveness, effectiveness and transportability (able to be used by other local governments). Bill Taylor received the award on behalf of East Hartford and Dwight Ryniewicz for Woodstock.

The Technology Transfer Center at the Connecticut Transportation Institute is accepting 2007 applications from Connecticut municipalities until August 1, 2007. Please contact Mary McCarthy, Training Coordinator at 860-486-1384 or mary@engr.uconn.edu. For more information, visit our web site at www.t2center.uconn.edu.

Our Public Works Listserv Can Work for You

If you're looking for an opportunity for you to participate in discussions and share your concerns, questions and best practices, we encourage you to subscribe to our ***Connecticut Public Works Listserv***.

This listserv was created specifically for members of our public works community so you can tell others your new ideas, ask questions to help solve your challenges and learn about new materials, methods and practices.

The process is very easy, just follow the instructions below and get ready to start networking with your fellow public works professionals.

CTPUBLICWORKS-L

☆ Tell others of new ideas

☆ Ask questions to solve your problems

☆ Learn about new materials, methods, & practices

The Technology Transfer Center has created a listserv for members of the public works community in Connecticut. This Listserv will enable participants to provide information and ask questions via email. The user sends a message to one address that is automatically forwarded to everyone on the list. Replies can be sent to an individual or to everyone.

To subscribe, go to http://listserv.uconn.edu/ctpublicworks-l.html

1- Please click on "join or leave the list (or change settings)"

2- In the field for "your name", please enter your name, followed by a dash and then the agency or town you work for.

Example: Jim Smith-Tolland or Dan Jones-ConnDOT

3- After this information is entered, click on "Join CTPUBLICWORKS-L"

We look forward to having you on CTPUBLICWORKS-L!

Please call Mary for more information at 860-486-1384,
or email her at mary@engr.uconn.edu

Technology Transfer Expo 2006

The Technology Transfer Center and the Connecticut Highway Street Supervisor Association (CHSSA) teamed up to host the Technology Transfer Expo 2006 on September 20. Attendance was estimated at over 500 individuals turning out for the free five hour demonstration and training event.

The Technology Transfer Expo is designed to present new products, applications and equipment to municipal agencies that help meet their local transportation needs, particularly in the highway segment. More than 40 vendors and exhibitors provided interactive and static displays of their newest technologies. There were also instructive demonstrations on sander calibration for salt and anti-icing, textured crosswalk installation, and use of catch basin filters as well as the Center's 2005 Creative Solutions Award winning innovations.

The Town of South Windsor swept the top three champion positions in the "Expo Challenge," which comprised backhoe operating skills and knowledge of personal protective equipment, Call Before You Dig regulations, OSHA compliance, and work zone safety.

Mary McCarthy, Technology Transfer Center training coordinator worked with CHSSA officials Chuck Holyfield of East Lyme and Dave Gofstein of Bloomfield to organize the event.

Held at the University of Connecticut's Depot Campus adjacent to the Connecticut Advanced Pavement Lab, this was the fifth expo presented in the past six years targeting local transportation officials and their crews.

For photo highlights of the day's events, visit our online Expo Gallery at:

http://www.t2center.uconn.edu/expo2006/expo_2006.html.

It's a real challenge to place a basketball in a 5-gallon bucket (above), but our winners did it.

From left to right:

Rob Hunt, 3rd Place

Glenn Boglisch, 2nd Place

Mike Spielman, 1st Place

Demonstrations, such as pavement texturizing, allowed participants to view new materials and procedures.

Woodstock and Thomaston, the 2005 Creative Solutions Award winners, displayed their Catch Basin Top Removal Sling and Under Guiderail Material Pusher.

Thanks to Participating Vendors and Exhibitors

A H HARRIS

ACORN - R W THOMPSON

ATLANTIC BROOM

BACHER CORP

BART TRUCK

C N WOOD

CALL BEFORE YOU DIG

CAPITOL RENTALS

CT INTERLOCAL RISK MANAGEMENT AGENCY

CT HIGHWAY STREET SUPERVISOR ASSOCIATION

CONNOSHA

COSTELLO

CUES

EAST COAST SIGN & SUPPLY

E J PRESCOTT

EMERGENCY LIGHTING SYSTEMS OF RI

FELIX MARINO

FRANKLIN PAINT

FREIGHTLINER OF SOUTHERN CONNECTICUT

GENALCO

H O PENN

HANSON PIPE

JAMIESON

KAHN TRACTOR & EQUIPMENT

NUTMEG INTERNATIONAL TRUCKS

PARK CITY TRUCK

POWER AMERICA

QPR / LAFARGE

REDI ROCK WALLS

RIVERSIDE ASPHALT

RO-BRAND PRODUCTS

RPM INC.

RIVERSIDE ASPHALT

STREETWORKS

TURF PRODUCTS

TYLER EQPT

W H ROSE

W I CLARK

WHELEN FACTORY

Study Reveals Geometric Design Issues Concerning Head-on Collision Rate and Severity

by John N. Ivan and Chen Zhang

Head-on collisions have been found disproportionately represented in fatal accidents on rural two-lane highways compared to other roads. This is a serious issue because such roads constitute a substantial proportion of the highway network in the United States, according to the National Center for Statistics and Analysis (NCSA) and the National Highway Traffic Safety Administration (NHTSA) data. Current highway design guidebooks, such as the American Association of State Highway Transportation Officials' (AASHTO) Green Book, offer guidelines for highway engineers to design two-lane highways accounting for basic safety considerations such as stopping sight distance. However, while these guidelines offer a basic level of safety, following them cannot completely eliminate accidents. Consequently, the guidelines cannot offer solutions for reducing the incidence or severity of the accidents that actually do occur, nor any help with understanding why they occur.

In order to make up for this critical knowledge gap, a research team led by Dr. John Ivan of the University of Connecticut and Per E. Garder of the University of Maine received funding from the US Department of Transportation through the New England University Transportation Center. This study investigated the effects of road and accident factors on both the incidence and the severity of head-on collisions on rural two-lane roads in Connecticut and Maine, including factors such as the geometric characteristics of the road segment, weather conditions, road surface conditions, and time of occurrence.

For the study, 720 highway segments in Connecticut were selected, and head-on collision data were further collected for these segments from year 1996 through 2001.

A statistical model estimation method called negative binomial (NB) generalized linear modeling (GLIM) was then used to evaluate the effects of roadway geometric features on the incidence of head-on collisions in the Connecticut data set. The model results reveal that head-on collisions are more likely to occur at segments:

1. with frequent horizontal curves that require frequent steering changes;
2. with sharp horizontal curvature;
3. with an undulating vertical alignment that visually occludes portions of the road ahead.

Interestingly, variation in lane width and shoulder width did not significantly affect the incidence of head-on collisions in the data set.

A different estimation method, Ordered Probit modeling, was used to identify factors explaining differences in head-on collision severity using data from both Connecticut and Maine. The model results reveal that more severe head-on collision occur:

1. when the roadway surface is wet;
2. when the road segment is narrow (less than 30 ft);
3. where there are more driveway access points (more than 10 access points per kilometer);
4. between the hours of 10 p.m. and 6 a.m.

These findings for explaining both the incidence and severity of head-on collisions help to identify trade-offs in geometric design decisions with respect to head-on collision incidence rate and severity and project cost. Obviously, it is impossible to avoid horizontal and vertical curves in an area such as New England where designing a straight, flat road would be prohibitively expensive, if not impossible. However, these results tell us that for reducing the

incidence of head-on collisions it is more efficacious to focus on the alignment than on the cross-section. On the other hand, adding a six-foot shoulder to a road will substantially reduce the severity of any head-on collisions that occur. These seemingly contradictory findings may be explained as follows: widening the road may induce higher speeds so that the additional maneuvering space remains insufficient to avoid the crash, but it may be sufficient to avoid a direct head-on collision, reducing the severity somewhat.

So, how can highway engineers use this information? Very often, when a narrow, curving road segment is improved, the road is not only straightened but also widened to 12-foot lanes and 8- to 10-foot shoulders. This research suggests that softening the alignment can reduce accidents, but it is only necessary to widen the shoulders to about 6 feet, as any widening beyond that has no safety benefit. In many cases, this would amount to substantially reduced right-of-way acquisition and preparation costs, as four to eight feet can mean the difference between taking and not taking a house or needing or not needing structural reinforcement of an embankment. Widening a road can also tremendously change the character of the neighborhood through which the road passes, which can result in opposition from the residents. Why design for higher costs and contend with neighborhood opposition when it is unnecessary from a safety standpoint?

The complete report, "The Effect of Segment Characteristics on the Severity of Head-On Crashes on Two-Lane Rural Highways," can be viewed online at http://www.cti.uconn.edu/pdf/ucnr15-5_ivan_final-report.pdf.

For additional information on the report, please contact:

John N. Ivan, Ph.D.
Phone: 860-486-0352
john.ivan@uconn.edu

Dr. Ivan is Associate Professor and Ms. Zhang is a Ph.D. student in the Civil and Environmental Engineering Department at the University of Connecticut.

Nationally, 83 percent of two-lane undivided road crashes occur on rural roads, and the possibility of a fatality in a head-on crash is three times higher in rural areas.

Prevent Crashes Caused by Unsafe Pavement Edge Drop-Offs

Unsafe pavement edges are a serious safety problem. An estimated 11,000 Americans suffer injuries and 160 die each year in crashes related to unsafe pavement edges, at a cost of $1.2 billion. The true extent of the problem is difficult to assess because the role of the hazardous pavement edge in the sequence of events leading to a crash often is not documented.

What is the Definition of an Unsafe Pavement Edge?

An edge drop-off of four or more inches is considered unsafe if the roadway edge is at a 90° angle to the shoulder surface. Near vertical edge drop-offs of less than four inches are still considered a safety hazard to the driving public and may cause difficulty upon reentry to the paved surface.

How do Unsafe Edges Cause Crashes?

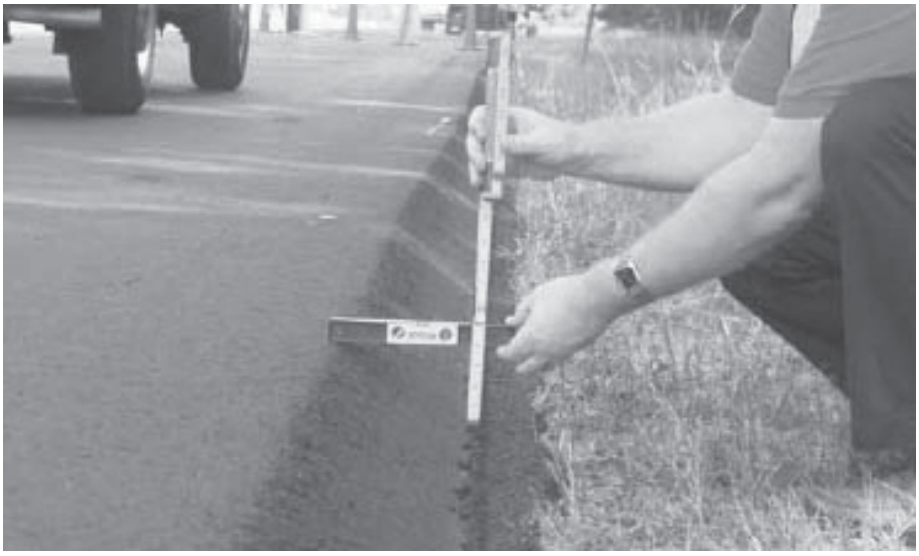
Drivers who slip off a resurfaced road onto an unimproved shoulder are likely to lose control as they attempt to climb onto the roadway. The pavement edge creates a "scrubbing" condition that must be overcome through over-steering. As drivers over-steer to reenter the roadway, they are prone to lose control of the vehicle. Compounding the danger, the rear wheel may catch the edge of the shoulder, swinging the vehicle around. These actions may cause the vehicle to veer into the adjacent lane, where it may collide with or sideswipe on-coming traffic, overturn, or run off the road and crash.

Solutions to the pavement edge drop-off hazard are to:
Require a 30-35° angle asphalt fillet "Safety Edge" as a contract specification in all pavement resurfacing projects; and
Routinely resurface shoulders when roadways are resurfaced.

The asphalt fillet provides a safer roadway edge, and a stronger interface between the roadway and the shoulder. The cost of an asphalt fillet is minimal in comparison to the total amount of the resurfacing contract, and pays back in countless dollars saved from reduction or fatalities, injuries, property damage and lawsuits.

The fillet ties the existing shoulder into the resurfaced roadway and allows a vehicle to reenter the roadway safely. Highway agencies are able to restore the shoulder after the resurfacing project is completed.

Be part of the solution by specifying the "Safety Edge." It can save lives, reduce tort liability and reduce maintenance expense, all for a cost less than 1% of your pavement resurfacing budget.



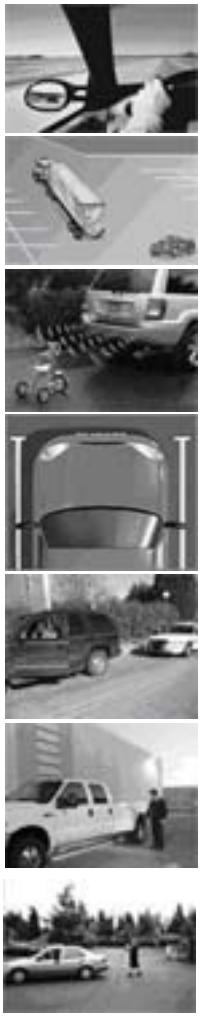
The Federal Highway Administration recommends adopting a standard contract specification requiring a 30-35° angle asphalt fillet along each side of the roadway in all resurfacing projects as a simple and cost-effective way to assure pavement edge safety.

From *The Safety Edge*, Federal Highway Administration Pub. No. FHWA-SA-05-003, available online at http://safety.fhwa.dot.gov/roadway_dept/docs/sa05003.htm

Vehicle Safety: Avoiding Backing Accidents

One of every four accidents involves backing. Considering that the average driver operates in reverse less than a mile every year, this statistic is even more alarming.

The following tips will help you avoid collisions while backing:



√ ***Continuously check all mirrors while backing.***

√ ***Always back slowly while continuously looking and listening for signs of trouble.***

√ ***Avoid backing whenever possible. Drivers should plan ahead to reduce backing operations in the first place.***

√ ***Try to position the vehicle to avoid backing.***

√ ***If backing cannot be avoided, it is better to back in upon arrival than to back out later while departing.***

√ ***Conduct a visual walk-around of the vehicle to check for maneuvering room or pedestrians.***

√ ***Whenever available, use a passenger to guide you during backing operations.***

The following are key collision failures related to backing operations:

- Failure to look before backing
- Failure to check blind spots
- Failure to conduct a walk-around
- Backing at an unsafe speed
- Failure to check mirrors often for potential hazards

All backing accidents are preventable. The key is to plan ahead to avoid backing in the first place. You should only back up your vehicle as a last resort.

Ecologically Invasive Plants: What They Are and What to Do About Them

Invasive plants are non-native or exotic plants that were introduced by human activity and quickly established. Many non-native plants are well known agricultural or horticultural species. Most of these do not escape cultivation or have minimal impacts on natural communities if they do spread. Invasive species rapidly disperse and establish, displacing native plants and altering ecological processes like fire occurrence and nutrient cycling. Due to their rapid growth, efficient means of seed dispersal, and tolerance of a wide range of environmental conditions, invasive plants outcompete with native species for sunlight, nutrients, and space.

Natural predators and disease, which controlled their populations in their native habitat, are lacking. Native species that are threatened or endangered are particularly susceptible to displacement. As the diversity and populations of native plant species decrease, wildlife habitat is reduced. Occasionally, invasive species will reproduce with natives and produce hybrids. This changes the gene pool in an area and can reduce biodiversity. If biodiversity decreases, the ecosystem becomes more vulnerable to disease and pests. Of the 4000 estimated non-native plants in the United States, over 300 are considered highly invasive. Half of these were introduced for horticultural purposes. Others arrived in seed mixes, packaging materials, and by other means. In Connecticut, the Department of Environmental Protection has identified 87 invasive plant species that occur in natural areas, parks, and other areas throughout the state.

Management can be achieved in two ways: prevention and eradication and control.

Prevention

Preventing invasive species from establishing in an area is critical to any invasive species control plan. Early detection and control is more effective than trying to eradicate or control large populations. Prevention will save time, effort, and money.

Two ways to reduce establishment are:

1. avoid introducing known invasives
2. reduce land disturbance and soil exposure.

When Is an Invasive Plant a Noxious Weed?

When your state agriculture or natural resource department and/or legislature says so. That is how most pest plants are designated noxious weeds. So if an invasive plant is an alien plant whose introduction does or is likely to cause economic or environmental harm, or harm to human health, what is a noxious weed? Most states use a definition of noxious weeds similar to that of the Federal Noxious Weed Law. The term “noxious weed” means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment.

So what is an invasive plant? The characteristics of an invasive plant are often synonymous or overlapping with that of noxious weeds. Invasive plants are described as being nonnative and the large majority of noxious weeds are also nonnative plants that were intentionally or accidentally introduced to this country and then went wild. So when an invasive plant becomes a noxious weed is when a state determines that an invasive could potentially harm agriculture, human health, and/or the environment.

Excerpted from “Greener Roadsides” newsletter, Federal Highway Administration, Spring 2005.

Many invasives are still sold for gardening and landscaping, wildlife habitat enhancement, and erosion control. Aquatic invasives are introduced by boat propellers and ballast/bilge water, released from aquariums, or attached to ornamental plants shipped from growers. Be careful to inspect nursery-supplied aquatic plants and remove all plant material from boats and boating equipment before traveling between waterbodies. As an alternative for landscaping and erosion control, promote the use of native species or non-invasive ornamentals. In balanced ecosystems, natural disturbances like fire and flooding keep the populations of introduced species in check.

Human disturbance enables potentially invasive species to spread. Whenever possible, avoid disturbance to the soil and canopy. Disturbances associated with trail and road construction create ideal conditions for establishment of invasive species. In fact, in natural areas these species often first appear at trail heads and along parking lots. Where disturbance is unavoidable, plant native species to establish a "natural" community and eliminate introduction sites for invasives.

Eradication and Control

Permanent eradication of invasive species is time consuming and often expensive. The time and resources available and the risks involved may dictate whether eradication is feasible. Where introductions are recent and populations are not well established, eradication may be possible. However, controlling population size is often more practical and will allow native vegetation to co-exist and thrive.

Efforts to control invasive species require patience, as several years may be needed to achieve desired results. Control methods are divided into three categories: mechanical, chemical, and biological. Determining which method is most suitable will depend on the species involved, the size of the population, surrounding environmental conditions, the management objectives for the area, and the resources available. In many cases, combining control methods may be more effective.

Mechanical Control

Mechanical control methods include hand-pulling, use of hand-tools to cut, dig up, or girdle, mowing, and prescribed burning. Hand-pulling can control small annual or biennial species or seedlings of woody species. For large populations of herbaceous (soft-stemmed) species, hand tools like weed whips or hoes can be effective. While many species can resprout from the roots or lower trunk, repeated cutting of sprouts will eventually kill the plant. Combining cutting or girdling with herbicide treatment will greatly increase control of woody species. In plant communities adapted to or dependent on fire, prescribed burning is preferred since this method mimics a natural process. Many invasive species are not adapted to fire and, thus, are effectively controlled by burns.

Chemical Control

Herbicide use is effective, but is best reserved for severe infestations or where non-chemical methods are inadequate. Different herbicides have different application methods and target species. Research these carefully and apply according to label instructions. Herbicide applicators may need to be licensed, especially if working in wetlands or on waterbodies.

Herbicides can be applied in two ways, as a foliage spray or brushed/sprayed onto cut stems or basal bark. Workers should wear protective clothing and gear, including coveralls, rubber boots and gloves, eye protection, and a respirator or gas mask. After use, clothing should be washed and gear thoroughly cleaned.

Biological Control

Biological control uses a plant's natural enemies, usually insect herbivores or microbial pathogens, to control a population. Highly host-specific organisms must be used to minimize impacts to non-target species. Pre- and post-treatment monitoring of non-target species is critical to a biocontrol program.

Excerpted from "Ecologically Invasive Plants: What Are They and What to Do About Them," Connecticut Department of Environmental Protection, 1999.

To Learn More About Invasive Plants and Noxious Weeds...

Visit These Online Resource Sites

Connecticut Invasive Plant Working Group
http://www.hort.uconn.edu/cipwg/

Connecticut Department of Environmental Protection Non-Native Invasive Plant Species Program
http://www.dep.state.ct.us/cgnhs/invasive.htm

National Invasive Species Information Center
http://www.invasivespeciesinfo.gov/

USDA Forest Service Invasive Species Program
http://www.fs.fed.us/invasivespecies

Federal Highway Administration Roadside Vegetation Program
http://www.fhwa.dot.gov/environment/vegmgt/index.htm

Check Out These Online Publications

Invasive Species Identification Sheets
Connecticut Natural Resources Conservation Service
http://www.ct.nrcs.usda.gov/invas-factsheets.html

"Roadside Vegetation Management," Chapter 9 of ***Environmental Stewardship Practices Procedures, and Policies for Highway Construction and Maintenance***
National Cooperative Highway Research Program Project 25-25(04)
http://environment.transportation.org/environmental_issues/construct_maint_prac/compendium/manual/9_3.aspx#

Backcountry Road Maintenance and Weed Management
USDA Forest Service
http://www.fs.fed.us/invasivespecies/documents/BackcountryRdMtceWeed.pdf

Guide to Noxious Weed Prevention Practices
USDA Forest Service
http://www.fs.fed.us/rangelands/ftp/invasives/documents/GuidetoNoxWeedPrevPractices_07052001.pdf

Request These Materials from the Technology Transfer Center

Common Roadside Invasives: A Field Guide to Showy Herbaceous Weeds
Federal Highway Administration, Publication No. FHWA-EP-02-003
This guide identifies common and showy roadside invasive grasses and forbs, all of which are on various state noxious weed lists. The guide is designed to help roadside vegetation managers and maintenance personnel to identify and control invasive plants in their jurisdictions.

Dangerous Travelers: Controlling Invasive Plants Along America's Roadways
USDA Forest Service San Dimas Technology and Development Center

This training video is designed to help maintenance crews recognize and control noxious weeds along roadsides.

The video outlines the best management practices that road crews should be following in their day-to-day operations, such as how to work with botany professionals for plant identification, developing inventory systems, mapping infestations, mechanical removal, herbicide treatments, weed free products, maintenance techniques to reduce risk of spreading weeds, and equipment cleaning.

The video is available for loan either as a single DVD or as part of the "Forest Roads and the Environment" DVD, which contains five programs covering maintenance practices for unpaved roads. It is also available online at http://www.fs.fed.us/invasivespecies/prevention/dangerous travelers.shtml.

To request either of these items, please use the form on the back page of this newsletter or call the Technology Transfer Center at 860-486-5400.

Calendar

Connecticut Technology Transfer Center Training Opportunities

MARCH

21 ***Geosynthetic Best Management Practices for Phase II Stormwater***
Road Master Elective, Haddam

22 ***Geosynthetic Best Management Practices for Phase II Stormwater***
Road Master Elective, Storrs

27 ***Flagger Certification***
Road Master Elective, Bethel

28 ***Flagger Certification***
Road Master Elective, East Lyme

29 ***Flagger Certification***
Road Master Elective, Storrs

APRIL

24 ***Flagger Certification***
Road Master Elective, Canton

25 ***Flagger Certification***
Road Master Elective, Glastonbury

26 ***Flagger Certification***
Road Master Elective, Bloomfield

Please visit our web site at www.t2center.uconn.edu/workshops.html
for additional details or to register on line. If you have questions, please call 860-486-5400.

T² Training Programs Coming Down the Road in 2007

Road Master Program

Required Workshops

- Effective Communication Skills I
- Principles of Drainage
- Work Zone Safety

Elective Workshops

- Maintenance for Gravel Roads
- Surveying Methods for Gravel Roads

Road Scholar Program

Required Workshops

- Infrastructure Asset Management
- Supervisory Skills

Elective Workshops

- Creating Budgets for Local Road Projects
- Low Cost Safety Improvements
- Road Safety Audits

Municipal Legal Traffic Authority Program

- Low Cost Safety Improvements
- (supersedes Curb Cut Management requirement)
- Where and When to Use Signs, Signals and Markings

Special Events

- Technology Transfer EXPO
- Safe Routes to School Awareness Sessions

Look for flyers in the mail or visit our online workshop schedule at www.t2center.uconn.edu for information on these and other programs planned for 2007.

Technology Transfer Center Request Form

_____ Please change my address/contact information as indicated below.

_____ Please add this person to the mailing list. _____ Please remove this person from the mailing list.

Name: _____

Title: _____

Agency/Organization: _____

Address: _____

_____

City/State/Zip: _____

Phone: _____ Fax: _____ E-mail: _____

I would like to see a future newsletter article on the topic of _____

I would like to submit a newsletter article; please call me at _____

I would like to request the following informational resource materials:

_____

_____

Please fax a copy of this form to 860-486-2399 or mail to:

University of Connecticut
Technology Transfer Center
Connecticut Transportation Institute
179 Middle Turnpike Unit 5202
Storrs, CT 06269-5202

CONNECTICUT TRANSPORTATION INSTITUTE
Technology Transfer
UNIVERSITY OF CONNECTICUT
179 MIDDLE TURNPIKE
UNIT 5202
STORRS, CT 06269-5202

NON-PROFIT ORG.
U.S. POSTAGE
PAID
STORRS, CT
PERMIT NO. 3