MASS INTERCHANGE

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FLAGGERS ARRIVE

After much debate and solicitation of input from police officers, police unions, representatives of the Beacon Hill Institute, the Pioneer Institute, and the Transportation Finance Commission, a public hearing was held on May 20, 2008 to encourage additional testimony regarding incorporation of road flaggers into transportation management plans. On August 13, 2008 the Patrick Administration issued a press release stating that the use of road flaggers would occur on public works projects where the Commonwealth is the Awarding Authority including state projects on local roads. The Executive Office of Transportation and Public Works (EOTPW) was able to finalize a regulation in early October after preparing a cost report and receiving written and verbal comments from the public.

Regulation (701 C.M.R. § 7.00) identifies:

- Different tiers of public works projects requiring road flaggers, police details, and traffic devices;
- When the above are required;
- The authority of the Authorized Representative regarding safety of the traffic management plan; and
- Responsibilities of road flaggers and police details.

The **Guidelines** aid design consultants, awarding authorities, and authorized representatives with management and development of traffic control plans and work zone safety plans. Responsibilities are assigned to the District Highway Director as the Authorized Representative for MassHighway for all projects in that district, and MassHighway's resident engineer who shall report to the Authorized Representative and decide if conditions warrant the need for traffic control devices, flaggers or police details.

Road flaggers shall primarily be restricted to low speed, low volume roadways, i.e., a legal speed of 40 mph within construction zones or a roadway with a traffic volume of less than 4,000 ADT a day.

All flaggers working in Massachusetts must follow minimum safety equipment requirements, be at least 18 years old, and carry a valid certification card at all times while on the job. MassHighway has identified the necessary components of this training and can approve certification programs to allow private agencies to prepare flaggers. Certifications are valid for two years and require current first aid authorization upon initial flagger certification. It is important to pass a refresher course covering the principles of work zone safety and flagging operations within one month prior to the expiration of a certification in order to be recertified for two more years.

Flaggers must comply with the following minimum equipment requirements (which must be included as

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LTAP CELEBRATES SUCCESS

The Local and Tribal Technical Assistance Programs (LTAP/TTAP) have been in existence for over 25 years training the nation's grassroots transportation workforce. Baystate Roads Program, your LTAP center at the University of Massachusetts/Amherst, has been in operation since 1986 and continues to innovate and evolve to meet tomorrow's transportation challenges including a retiring workforce, declining transportation budgets, and aging infrastructure. With the focus on four key areas: safety, infrastructure management, workforce development and organizational excellence, Baystate Roads strives to bring new technology to local cities and towns.

Installing a concrete sidewalk in Lynn

An advisory board, which meets twice a year, assists the program manager in planning each semester's workshop schedule but the ability to be flexible and tailor training and technical assistance to an individual agency is paramount to the program's success. The LTAP/TTAP mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving the skills and increasing the knowledge of the local transportation workforce. This means providing hands-on methods for moving innovative transportation technologies and practices into the hands of the men and women charged with maintaining the nation's local roads and bridges.

Paul Brown checking calibration at a Snow and Ice Control workshop in Andover

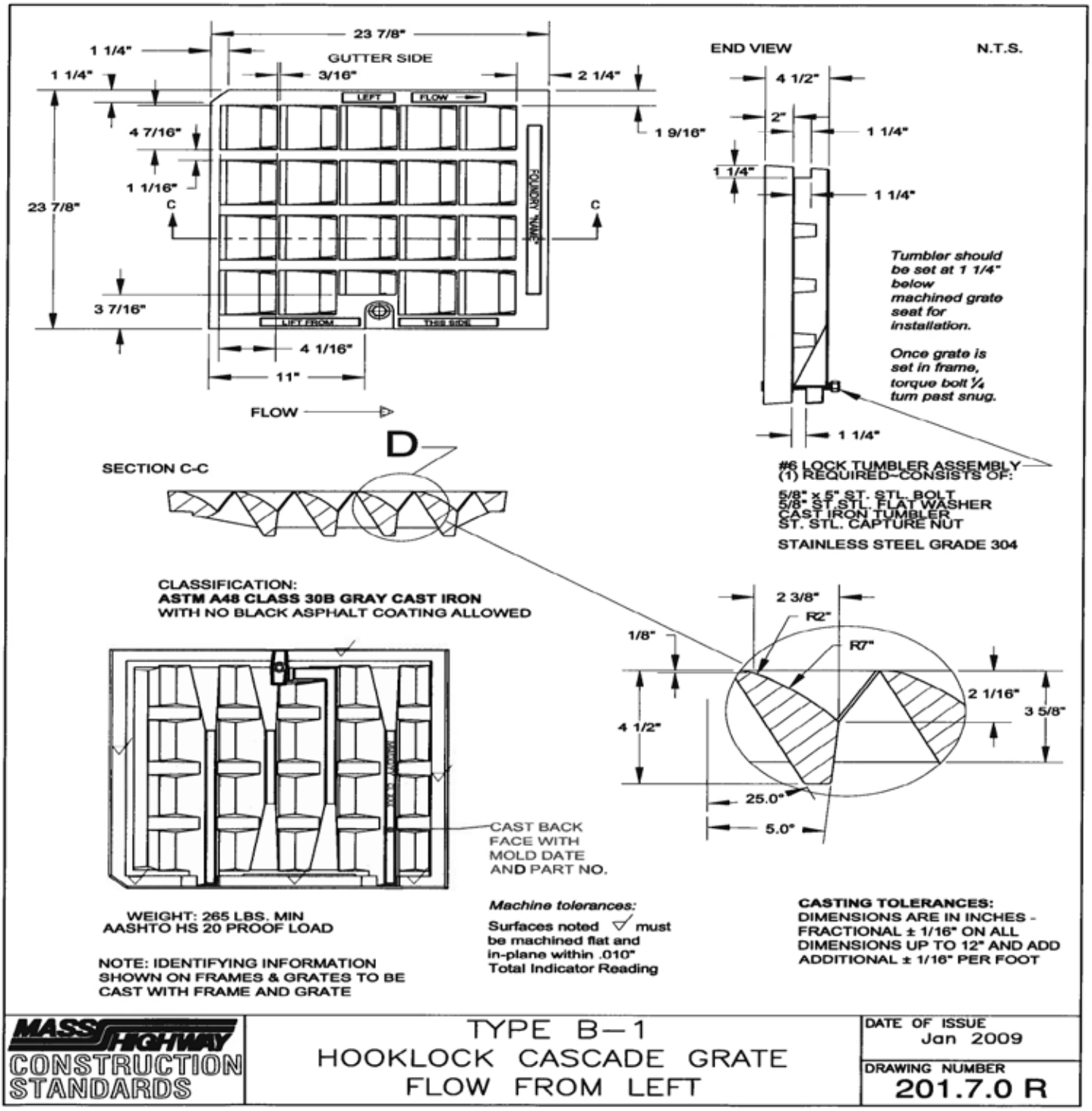
Each year Baystate Roads requests feedback from our clients on the evaluation of its effectiveness. Responses contribute to making the program a successful and dynamic tool that can work for each community. Please look for this annual needs survey in the mail and return it with your comments and suggestions.

The Roads Scholar and Master Roads Scholar Programs recognize attendees for reaching various competency levels through training and development of transportation expertise. Roads Scholar status is awarded for attendance at 7 workshops since 1995 whereas the Master level is achieved after participating in 22 classes. Although requirements vary for each state, the underlying approach is to provide curricula that enable workers to study road fundamentals, safety, drainage, snow and ice removal, and other topics with the goal of becoming expert road managers.

With local, state and federal budgets dripping red ink, it is imperative that communities make the most of their resources and transportation workforce. A small investment in training can increase efficiency, provide awareness of new technology, and help motivate the next generation of employees.

NEW HOOK LOCK GRATES FOR CATCH BASINS

MassHighway has designed a new locking mechanism for grates that will prevent rocking and dislodging. This new engineering directive (E-09-002) was issued on January 16, 2009, indicating that hook lock grates shall be used as the standard catch basin grates on MassHighway roadways. Hook lock cascade grates may be used on any facility, but **must** be used on all MassHighway roadways where bicycle traffic is allowed. Hook lock cascade grates or municipal standard grates shall be used on municipally-owned roadways per the direction of the affected municipality. The directive requires that the inside edge be a milled surface for a smooth fit. The two tabs that slip under the frame along with a 5/8" x 5" bolt hold it in place. A hook lock cascade grate with flow from the left is illustrated.



GRAVEL INTERSECTIONS AND DRIVEWAYS REQUIRE PROPER SHAPE MAINTENANCE

Maintaining the correct shape on gravel road intersections, gravel road intersections with paved roads, and intersections with driveways on gravel roads can be a real challenge in the field. Knowing how to shape a gravel intersection is an important part of county road maintenance.

GRAVEL ROAD INTERSECTIONS

The first thing to consider before starting to shape a gravel road intersection is whether it is a controlled or uncontrolled intersection. Does traffic have to stop or yield from the side roads? If it does, then the intersection is a controlled intersection (Figure 1).

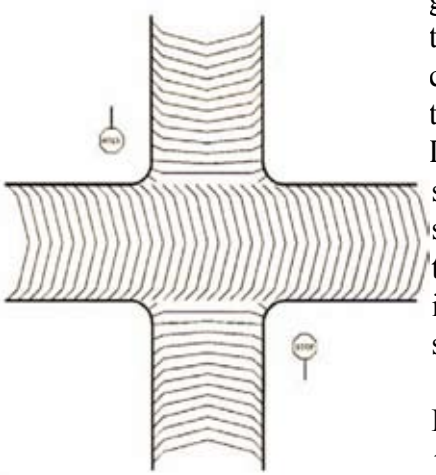


Figure 1
When shaping a controlled gravel road intersection, the through-road should retain its crown while the side roads, which have stop or yield signs, are shaped to match the edge of the primary road.

For a controlled intersection, the primary road on which traffic passes through should retain its crown. Gravel that has drifted out onto the primary road can destroy the road's shape. Using a motorgrader, the crown needs to be cut back into the correct shape.

Restoring the crown on the primary road can leave a dropoff where one of the intersecting roads meets it. If so, this should be corrected by cutting the material loose and moving it back onto the intersecting road. The intersecting roads should have their crowns gradually eliminated beginning approximately 100 feet before the intersection. At the point of intersection, the side roads should be virtually flat matching the primary road.

When the intersection is uncontrolled (traffic does not have to stop or yield from the side roads) as shown in Figure 2, the roads should all have the crowns gradually eliminated beginning approximately 100 feet before the intersection. The intersection itself becomes virtually flat, which allows vehicles to pass through without feeling a noticeable hump or dip from any direction.

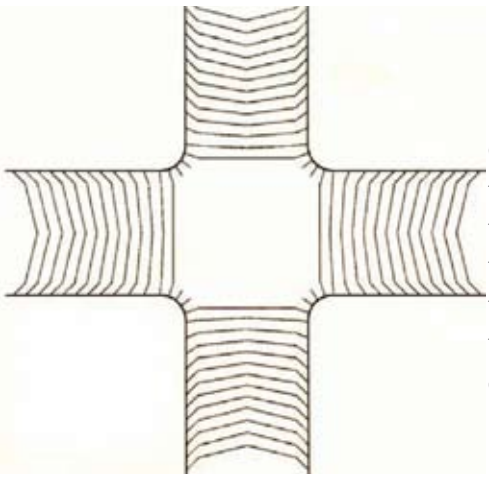


Figure 2
For proper shaping of an uncontrolled intersection, eliminate the crown from all directions approaching the intersection.

Care should be taken to ensure that the intersection is not lower than the roads so that water will not collect there.

GRAVEL ROAD INTERSECTIONS WITH PAVED ROADS

The rule for shaping gravel road intersections with paved roads, as shown in Figure 3, is always the same. Begin to eliminate the crown on the gravel road approximately 100 feet from the pavement's edge.

At the intersecting point, the gravel should match the paved surface. Periodic inspections are necessary because potholes can easily develop at the edge of the pavement. Also, it is important not to push gravel out onto the pavement since this causes a dangerous loss of skid resistance on the pavement.

For pot holes, the "backdragging" technique can be useful. If extra material spills onto the pavement when filling a pothole, pick up the mold board and set it down in front of the material. Then back up and spread the excess back onto the gravel road.

GRAVEL ROAD INTERSECTIONS WITH DRIVEWAYS

The public road should always retain its normal crowned shape when passing driveways. The gravel can build up on the road at a driveway entrance as shown in Figure 4. This buildup changes the shape of the roadway itself, which can cause loss of control of vehicles. When this buildup happens, the road needs to be reshaped. The driveway entrance should always match the public road edge as shown in Figure 5.

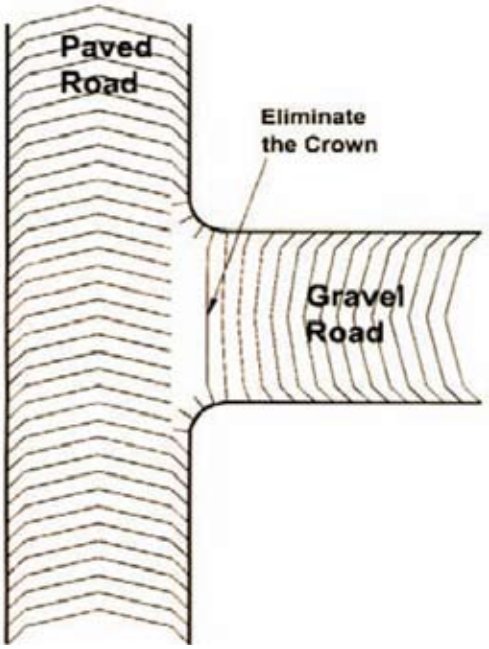


Figure 3
For a gravel road intersection with a paved road, gradually eliminate the crown of the gravel road to match the edge of the pavement.

To achieve proper shaping on a driveway intersection, perform the following steps:

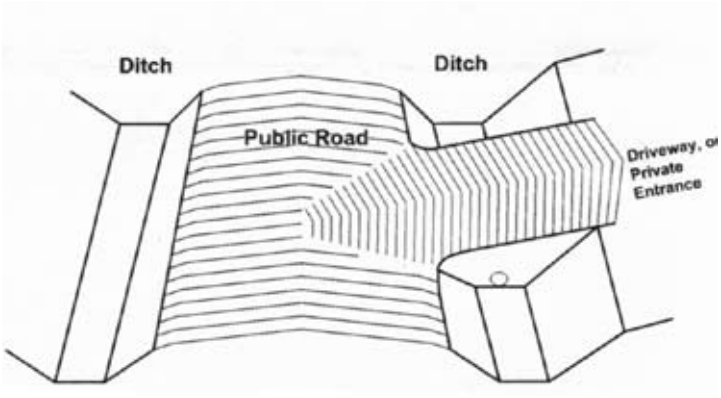


Figure 4
Improper matching of driveway and road edge.

☐ Restore the crown on the public road by removing excessive material that extends from the driveway. This operation creates a dropoff.

☐ Correct the dropoff at the end of the driveway by cutting the material loose and spreading it back onto the driveway. A grader-mounted dozer blade with cutting bits can make this job easier.

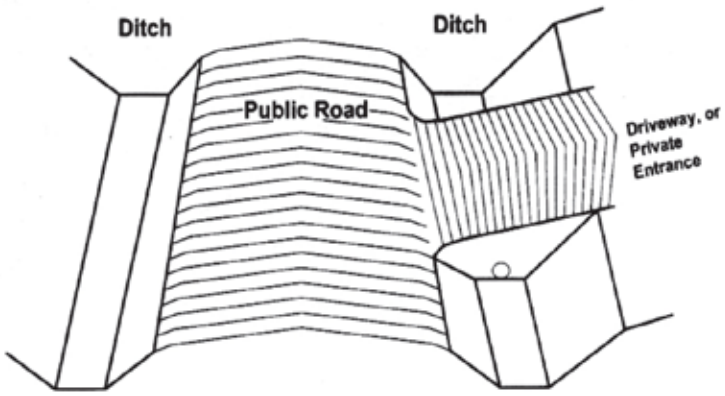


Figure 5
Proper matching of driveway and road edge.

These steps should result in a well-shaped driveway entrance that matches the edge of the public road. In heavily populated areas with gravel roads, poor installation of driveways can become a problem. To reduce maintenance problems, a permitting process can be implemented, which addresses the proper control of grade to match the road edge, adequate width, and drainage.

All shaping on gravel intersections should be done with a straight cutting edge on the motor grader and performed when moisture is present in the gravel.

Additional references from web or Baystate Roads Library:

www.state.ma.us/mhd

MassHighway Project Development and Design Guidebook, January 2006.

MassHighway Engineering Directives

UNS-18 *Field Guide for Unpaved Rural Roads, University of Wyoming Technology Transfer Center, March 1997.*

UNS-19 *Gravel Roads Maintenance and Design Manual, South Dakota Local Transportation Assistance Program, November 2000.*

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ITS MASSACHUSETTS

The following letter from David F. Markt, President of ITS Massachusetts, invites the Commonwealth's transportation community to join the society.

This year's theme, "Saving the Green," will explore the role of ITS in developing an environmentally and monetarily sustainable transportation system.

The Intelligent Transportation Society of Massachusetts (ITS Massachusetts) is seeking the participation of new members. Currently, we are extending an offer of free membership through 2010 to all Commonwealth municipalities and regional planning agencies.

ITS Massachusetts is at the forefront of the biggest infrastructure investment in our state's history. We are a non-profit, non-partisan, broadly-based coalititon of public agencies, private companies, labor, municipalities, and institutions of academia - all concerned with the improvement of intermodal surface transportation in Massachusetts. For over a decade, ITS Massachusetts has served as the premiere organization advocating and supporting Intelligent Transportation Systems (ITS) in the Commonwealth. Intelligent transportation systems utilize advanced technologies and communications to improve the safety, security and efficiency of the surface transportation system. ITS Massachusetts serves as a forum and a resource for informaton about ITS projects, activities, and opportunities throughout the state. Our goal is to increase awareness of local ITS projects and ITS benefits among local policymakers, political leaders, and the general public. We are a state chapter of ITS America, providing a vital forum for municipalities, public agencies, private firms and universities to exchange information as well as supporting the planning, design and deployment of ITS projects in Massachusetts. We serve an advisory role to many transportation agencies, authorities and organizations. By joining ITS Masssachusetts as a member, you support our efforts to increase awareness of ITS in the Commonwealth. We have met with and continue to work with local, state and federal appointed and elected officials to form a partnership in promoting ITS in Massachusetts. Our goal is to promote ITS and your participation in the organization will only make us stronger and more visible.

Your membership can help us build on our success! As a member of ITS Massachusetts, you will receive the following benefits:

- Access to key decision and policy makers involved in ITS at the state and federal levels.
- Information on news and industry events from ITS America.
- Listing on the member-page of the ITS Massachusetts web site.

- Professional capacity-building workshops.
- Up-to-date information on ITS activities and projects in Massachusetts that is also available via email.
- Reduced registration fees at ITS Massachusetts events including our Annual Meeting and conferences.
- Free participation in sessions hosted by the ITS Massachusetts Technical Committee.
- Opportunities to get involved in the growth of ITS in Massachusetts.

Our Board and members look forward to working with you in all areas of ITS. Please fill out and return the membership application form found on the web site and attach a separate sheet indicating two additional individuals within your municipality/planning agency who you would like to see included on the ITS Massachusetts mailing list.

MEMBERSHIP QUESTIONS?

Contact our ITS Massachusetts Membership Chairperson: Jason DeGray with VHB at: (617) 924-1770 or jdegray@vhb.com.
For additional information about ITS Massachusetts, call: (617) 227-5551 or visit the website: http://www.itsmassachusetts.org or
ITS America's web site: http://www.itsoverview.its.dot.gov/.

ITS uses advanced technology including computers, communications, sensors, and control systems to improve safety and mobility. However, it is critical that energy/emissions of ITS implementations also be evaluated for design purposes.

Check out ITS articles that have appeared in prior issues of *Mass Interchange* (Fall 2005, Summer 2006, Spring 2007, Spring 2008) on the Baystate Roads web site: **www.baystateroads.org**

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requirements in the materials submitted for the program certification approval):

- White hard hat with reflectorized tape
- Lime vest and pants (ANSI Class III visibility)
- Two-way radios
- Stop/Slow paddles
- Weighted red flags for emergency work
- Air horn and whistle
- Adequate signs/cones for MUTCD approved work zone site

The locations of road flaggers and/or police details are designated on the plates for Traffic Control Plans, and Work Zone Safety Guidelines, or as directed by the Engineer. It is the responsibility and sole authority of the Engineer to determine the number of road flaggers and/or police details necessary to install these set-ups.

Plates are broken down into the following groups:

Standard Traffic Control Plans

Int=	Intersection
TLR=	Two Lane Roadway
Div=	Divided Highway
Brg=	Bridge
R=	Ramp
MLR=	Multi-Lane Roadway
Ped=	Pedestrian Crossing
D=	Detour Signing
RR=	Railroad Crossing

Work Zone Safety Guidelines

S=	Stationary Operations
M=	Mobile Operations
E=	Emergency Response
TS=	Traffic Signal Repair

More details as well as currently approved trainers can be found at: www.eot.state.ma.us

Baystate Roads Program
UMass Transportation Center
214 Marston Hall
130 Natural Resources Road
Amherst, MA 01003
ST131775

Non-Profit Organization
U. S. Postage Paid
Permit No. 2
Amherst, MA
01002

The Baystate Roads Program, which publishes Mass Interchange each quarter, is a Technology Transfer (T2) Center created under the Federal Highway Administration's (FHWA) Local Technical Assistance Program (LTAP). This newsletter is prepared in cooperation with The Excecutive Office of Transportation (EOT) and the United States Department of Transportation Federal Highway Administration. FHWA is joined by EOT, UMass Transportation Center at the University of Massachusetts/Amherst, and local public works departments in an effort to share and apply the best in transportation technologies. In addition to publishing Mass Interchange, the Baystate Roads Program facilitates information exchange by conducting workshops, providing reports and publications and videotapes on request, and offering one-to-one technical assistance on specific roadway issues. Because the program relies on input from many sources, inquiries, articles and ideas are encouraged.

LTAP Local Technical Assistance Program

To contact the Baystate Roads Program call (413) 545-2604 or FAX 413-545-6471

EOT

Massachusetts Executive Office of Transportation and Public Works

Federal Highway Administration

UMass Transportation Center

WORKSHOP CALENDAR

OSHA 10 HOUR

April 1-2	Red Lion Inn Stockbridge, MA
April 8-9	Hotel Northampton Northampton, MA
April 14-15	Chocksett Inn Sterling, MA
April 22-23	Coonamessett Inn Falmouth, MA
April 29-30	Holiday Inn Tewksbury, MA

Instructor: Jeff Gram, OccuHealth, Inc.

CHAIN SAW SKILLS/SAFETY

April 27-28	Otis, MA
April 29-30	Lancaster, MA

Instructor: Tim Ard, Forest Applications Training, Inc.

in this issue

BAYSTATE ROADS SCHOLARS

Congratulations to the newest Baystate Roads Scholar on his fine achievement. Keep saving those certificates and you, too, could be listed here.

Christopher Bouchard, Otis DPW

Please provide T-shirt size, your address and your supervisor's name, title, and address when notifying Baystate Roads Program of your status. Our workshop database will confirm your attendance. Notify BRP by FAX: 413-545-6471 or email: baystateroads@hotmail.com