MASS INTERCHANGE

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CHAPTER 90

Since 1973 the Chapter 90 Program has been providing financial assistance to the 351 cities and towns of the Commonwealth. The Program, first enacted in March of 1973 by the Public Works Commission, is an entitlement that allows for 100% reimbursement of a wide variety of transportation related activities. The current funding of $155 million annually has allowed communities to supplement their own budgets and undertake a variety of projects that ordinarily they would not have the financial means to support. The allotment to each community is based on a formula that includes data on road mileage, population, and employment in the community, with road mileage making up approximately 60% of the criteria.

Given that road mileage comprises such a significant percentage of the formula, it is important to get any newly accepted roads into a municipality's Road Inventory on a regular basis. Forms are available from local State Aid offices for adding roads to a town's inventory. When adding any new road(s) to the Road Inventory, a certified copy of the town meeting vote accepting the road(s) must be included with the submission.

In earlier years communities would enter into an annual Memorandum of Agreement with the Department to accept Chapter 90 funds. In 2000 standard contracts began to be used for accessing the allotment. This was a more cumbersome process than the Memorandum of Agreement and, in 2007, the Department entered into ten year contracts with the cities and towns, streamlining this part of the process considerably. Annual allotments are announced on or about April 1 of each year by a letter from the Governor to each of the communities notifying them of their share of funds for the upcoming fiscal year. New contracts do not have to be signed until 2017!

Exactly what can a community spend its Chapter 90 funds on? Activities allowed under Chapter 90 include roadway construction, preservation and improvement projects; the purchase of road building machinery, equipment and tools; and engineering services. Towns may build a salt shed, a garage for storing their road building equipment, bus or rail facilities, or construct off-street parking for a mass transportation facility. A complete list of approved activities can be found on the MassDOT/Highway website under "Programs" on the "Quick Links" tab:

www.massdot.state.ma.us/highway/

continued on page 3

MASTER ROADS SCHOLAR
Russell Robinson
Acton Highway Department

When I started working for the Acton Highway Department over 40 years ago, the crew was still using cable shovels and cable backhoes to do most of the heavy work. Acton had a fleet of military and state surplus trucks that required an excessive amount of time chasing parts.

As the current highway superintendent, my responsibilities now include supervision of the 106 miles of roadway in my community of 21,000. This, of course, includes snow and ice removal which has seen many changes over the years. One of my biggest challenges came when the DPW changed from the traditional salt/sand mixture to salt with a liquid magnesium chloride and corn-based enhancer. The challenge was getting the public to believe that this new technology would work because of the difficulty in their seeing application of this new mixture. My crew started with a small test route the first year and, then, covered all snow routes the second year. Today, we only use sand for ballast in trucks. This new procedure removes sand from basins and streams and has drastically cut down on road sweeping chores. Baystate Roads Program was very helpful in bringing this improvement to my attention.

I am also in charge of maintenance for all town vehicles (212 large units), bidding of fuel, fuel storage and maintenance of the fuel pumps for the town, schools, and Case Transportation. In the past few years, we have been running bio-diesel (B-20) in diesel engines with no problems.

Other responsibilities include the transfer station and recycling program that have seen many improvements over the years; trucks now haul trash 40 miles away instead of pushing it over an embankment.

Today, the highway department is similar to a snow plow company with a construction sideline. I am fortunate to have a super crew who will tackle most any job and am proud to work with my staff. Today, we have traded cable machines for hydraulic excavators and loaders.

CRASHWORTHY SIGN POST DEADLINE COMING

When do sign posts have to meet the new standards for crashworthiness?

The 2009 *National Manual on Uniform Traffic Control Devices* states that all signs in the clear zone must be made crashworthy (breakaway, yielding, or shielded with a longitudinal barrier or crash cushion). The *MUTCD*'s Table 1-2 lists the compliance date for roads with a posted speed of 50 mph or more as ***JANUARY 17, 2013.***

While there is no specific compliance date for roads with a posted speed under 50 mph, newly installed sign supports on these roads must meet the new *MUTCD* crashworthiness standards as well. So, as you replace your signs, be sure any new supports meet the new standard. Here is the relevant language from the 2009 *MUTCD*:

Section 2A.19 Lateral Offset:

Standard: *For overhead sign supports, the minimum lateral offset from the edge of the shoulder (or if no shoulder exists, from the edge of the pavement) to the near edge of overhead sign supports (cantilever or sign bridges) shall be 6 feet. Overhead sign supports shall have a barrier or crash cushion to shield them if they are within the clear zone.*

Post-mounted sign and object marker supports shall be crashworthy (breakaway, yielding, or shielded with a longitudinal barrier or crash cushion) if within the clear zone.

continued from page 1

Chapter 90 Funding

The process for accessing Chapter 90 funds is pretty straight forward and not nearly as daunting as folks seem to think. Communities must first file a Chapter 90 Project Request with their MassDOT District Office. Project requests must be approved by the district highway director prior to work commencing. Once the request is approved, a copy of the signed document will be sent to the municipality and work can begin. When in doubt about a proposed project or activity a community should first contact its district state aid manager to avoid any delays.

Communities must be in compliance with the Commonwealth's bidding laws, including but not limited to, Chapter 30, Section 39M; Chapter 29, Section 8B; and Chapter 149, Sections 26-27F and 44J. For horizontal construction contracts with a cost of $50,000 or greater, contractors must first be pre-qualified by MassDOT in order to be eligible to bid on any project funded under Chapter 90.

There have been a few recent changes to the prequalification process. Municipalities must e-mail the advertisement for their project to MassDOT's Prequalification Office at **prequel.109@state.ma.us**. The Prequal Office will then e-mail the municipality an official contractor bid list for those contractors prequalified in the specific class of work for which they are advertising. Those wishing to bid on a project may obtain plans and specifications from the municipality, but may not obtain an *Official Bid Package* without being on the approved list of prequalified contractors. Questions regarding waivers or the prequalification process in general, should be directed to the Prequalification Hotline at 617-973-7636.

Chapter 90 is a reimbursable program. Periodic requests for payment can be sent in during the course of a project, or full reimbursement can be requested at the end of the project. The contract number should be included on the cover sheet of the Reimbursement Request. Additionally, the following documentation should be included: a summary of bids, payroll and materials lists indicating invoice and check numbers along with the dollar amounts; a copy of the advertisement from the Central Register and newspaper; a copy of up-to-date Minimum Wage Rates. All documentation must include the original signature(s) of the authorized municipal official(s). These forms do not need to be submitted in duplicate but communities are strongly encouraged to keep a copy of the entire package for their records.

Local State Aid Managers are always available and more than happy to assist with any questions or concerns. No question is too trivial; do not be afraid to ask. All of the necessary Chapter 90 forms are available online and can be downloaded. For more detailed information, contact your local MassDOT District Office or visit the MassDOT website at:

http://www.massdot.state.ma.us/highway.

Thanks to Kati Murphy, Manager, MassDOT District 3 Office for this article.

SAFE ROUTES TO SCHOOL - SRTS

From left to right, Mayor Claire Higgins, Representative Peter Kocot, Congressman Richard Neal, and MassDOT Highway Administrator Luisa Paiewonsky cut the ribbon for the first SRTS in Northampton, MA

With the dedication in mid-September of improvements to pedestrian and bicycle access to the Jackson Street School in Northampton and the recent advertising of four more construction projects, Massachusetts continues to advance its Safe Routes to School (SRTS) program.

On Monday, September 13, 2010, the Massachusetts Department of Transportation dedicated the first SRTS project, a series of access and safety improvements around the Jackson Street School in Northampton. MassDOT Highway Administrator Luisa Paiewonsky and other MassDOT staff joined Congressman Richard Neal, Representative Peter Kocot, Mayor Claire Higgins, school officials, students and parents of the Jackson Street School ***(see photo above).***

This school project includes several measures to slow vehicle traffic, manage street crossings and improve sidewalk conditions. Specific enhancements include the construction of raised crosswalks adjacent to the school, reconstruction of the school driveway to reduce the curb radius and narrow the crossing, reconstruction of sidewalks between the Northampton Bikeway and the school, and construction of a ramp from the bikeway to the rebuilt sidewalk. The project was ready in time to be funded by the American Recovery and Reinvestment Act.

In the past month, MassDOT has advertised four SRTS projects for construction estimated at approximately $1.7 million. Bids are due between mid-November and December and construction is expected to begin in the spring of 2011.

The SRTS project at the Dallin School in Arlington will provide new sidewalks on portions of Renfrew Street, George Street, and Florence Avenue. Additional improvements include granite curbing, drainage improvements, upgraded handicapped ramps, pavement markings and sign upgrades.

At the West Memorial School in Peabody, the SRTS project includes sidewalk upgrades on Lowell Street and Herrick Road, handicapped ramps, pedestrian flasher assemblies, and pavement markings and sign upgrades. The new pavement markings will incorporate a new bicycle lane on Bow Street and delineate parking adjacent to the school.

The improvements to the Central School in Stoneham will improve safety and circulation around the school as well as construct a portion of the Tri-Community Bikeway, a long-planned bicycle project in Woburn, Stoneham, and Winchester. The portion of the bikeway that runs behind the school will be constructed as a 10-foot wide multi-use path. The improvements include sidewalk upgrades on the school campus and on Central Avenue, handicapped ramps, and pavement markings and signs. The project will result in a narrowed pickup and drop-off lane and extension of the pickup zone.



Photos courtesy of Safe Routes to School, FHWA

The SRTS project at the Bowman School in Lexington includes a dramatic upgrade to the sidewalk infrastructure on the streets serving the school. New sidewalks will be constructed on Philip Road, Lantern Lane, Dawes Road, Buckman Drive, and Locust Avenue. The project also includes a pedestrian flasher and warning sign assembly on Pleasant Street, handicapped ramps, and signs and pavement markings.

The Commonwealth's Safe Routes to School education and encouragement program works with students, parents, school staff and local police at almost 350 schools in 116 Massachusetts communities to promote walking and bicycling to school. This program seeks to improve students' health, reduce traffic congestion and improve air quality in Massachusetts communities. Because of its participation in the education and encouragement program, the Jackson Street School became eligible for infrastructure projects specifically targeted to helping children get to school more safely and conveniently.

Photo by Paul Niehoff Safe Routes to School, FHWA

MassDOT has engaged an on-call team of school engineers, planners and bicycle/pedestrian experts to plan, design and construct targeted infrastructure improvements that enhance access to the Commonwealth's elementary and middle schools. These school access experts analyze current travel patterns and conditions, identify safety problems and work with school officials, parents and community leaders to design and construct solutions developed to reduce traffic speeds and improve pedestrian and bicycle access to schools. MassDOT currently has seven additional safety improvement projects in design and 37 receiving planning and engineering assessments of their needs.

The Safe Routes to School program, a key component of the Healthy Transportation Compact in Massachusetts, promotes collaboration between the departments of transportation and public health to adopt best practices, increase efficiency and achieve positive health outcomes through the coordination of land use, transportation and public health policy. Safe Routes to School enables direct collaboration between the Commonwealth and schools and communities to promote walking and bicycling transportation as fun, safe and sustainable.

Safe Routes to School is federally funded and administered by the Mass*RIDES* travel options program on behalf of the Massachusetts Department of Transportation. To find out how your school can participate in Massachusetts, contact Donna Smallwood at:

donna.smallwood@state.ma.us or visit Safe Routes on the web regarding the national program.

STEPS TO GUARD AGAINST TORT LIABILITY

If you can answer "yes" to the following questions, your public works department is in a good position to defend itself against tort liability:

TRAINING

- Do employees regularly receive training appropriate to the work they perform and for the materials and equipment they use? Yes No
- Do employees understand the importance of using reasonable care in performing their duties? Yes No
- Are employees instructed to report hazardous conditions and to act on them? Yes No

SIGNS AND MARKINGS

- Do you make an up-to-date copy of the ***Manual on Uniform Traffic Control Devices*** and other agency governing documents available to employees? Yes No
- Are employees familiar with the ***MUTCD*** and other governing documents? Yes No
- Are signs and markings adequate, properly installed and well-maintained? Yes No
- Do you have an up-to-date inventory of signs, signals and markings, and a plan for maintaining conformance with the ***MUTCD*** and other governing documents? Yes No
- Do you have and follow a plan for periodic day-and-night review of signs and markings? Yes No
- Are identified road hazards posted with appropriate warning signs based on the ***MUTCD*** and other governing documents? Yes No
- Are bridges properly posted for weight restrictions and low clearance? Yes No

ROADS, CULVERTS, AND BRIDGES

- Do you have a current inventory of road, culvert, and bridge conditions, and a plan for addressing deficiencies? Yes No
- Is the right-of-way for your roads properly established and recorded? Yes No
- Do you keep good records on agency activities, including roadway conditions, crashes, and maintenance work? Yes No
- Do you use current versions of accepted guidelines in road design, construction, operations, and maintenance? Yes No
- Are dead end roads and railroad crossings properly signed? Yes No
- Do you provide proper temporary traffic control in work zones? Yes No
- Are sight lines clear at intersections? Yes No

ADMINISTRATION

- Are your roadways inspected on a regular basis? Yes No
- Is your equipment in good repair and are employees instructed to report faulty equipment immediately? Yes No
- Do you follow objective procedures in setting priorities? Yes No
- Are your maintenance standards achievable with the resources available? Yes No
- Do you have an established procedure for receiving complaints, acting on them, and recording all actions? Yes No
- Do you meet periodically with your legal counsel to review the status of roadway-related claims filed against your agency? Yes No

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ANYTHING NEW IN POTHOLE REPAIR ?

During fall and winter, cold, wet precipitation sits on top of the roadways and slips through cracks into the subgrade of your roads. Overnight it freezes and expands, pushing the road upward. During the day the frozen water thaws, and the road gets pushed back down from travelers' tires. This all-too-common cycle can wreak havoc on your roads and create hundreds of potholes to fix during spring and summer.

Usually a "throw and roll" cold patch does the job, at least for a while. It's been the procedure of choice for our region to use in colder weather when hot mixes are not feasible, but is it the best procedure still? Here are a couple of different ways to go about filling your potholes.

THROW AND ROLL: Material is placed in a hole which may be filled with water and debris, and then compacted by four to eight passes with truck tires.

EDGE SEAL: This is the throw-and-roll procedure plus edge sealing, using asphalt tack and sand on the road surface.

SEMIPERMANENT: Water and debris are removed from a hole, the sides are squared up, and cold patch material is placed in the hole and compacted by rollers or vibratory compactors.

SPRAY INJECTION: Water and debris are blown out of a pothole, virgin asphalt and aggregate are sprayed into the pothole and a layer of aggregate is placed on top of the patch.

According to the Federal Highway Administration, the throw and roll technology is still the preferrred method for pothole patching in the Northeast. Throwing material into a hole and passing over it eight or so times with truck tires does seem like an easy and efficient fix. But is it the best fix?

In a study conducted by FHWA's Pavement Technology Program, three cities in a wet-freeze zone like ours were selected for testing for the best methods for filling potholes. It was learned that the throw and roll was still the best method compared to edge seal and semipermanent, but only if quality materials were used. FHWA found that the semipermanent method's higher cost outweighed the cost savings due to the extra time that the potholes remained in good repair. Spraying hot mix into potholes is the most uniform way of filling the holes though, if operated by a trained employee.

The main objective in filling potholes is speed. The sooner it is filled after discovery of a pothole, the better the results. FHWA researchers concluded that the high-quality material throw and roll procedure is the best option. Spray injection also rated well. Using better quality materials reduced repatching, labor costs, equipment needs, traffic control and user delay. When considering the safety of your crew working alongside the road, using quality materials far outweighs using less expensive mixes.

Sources: *"Pothole Patching Demonstration." FHWA. www.fhwa.dot.gov/cadiv/techapps/potholes.htm*

"Pothole Repair." Techbrief. FHWA Pavement Technology Program. www.tfhrc.gov/pavement/ltpp/pdf/90202.pdf

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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 Massachusetts Department of Transportation (MassDOT) and the United States Department of Transportation Federal Highway Administration. FHWA is joined by MassDOT, 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

MassDOT
Federal Highway Administration
UMass Transportation Center

STAY IN YOUR OFFICE AND GO TO SCHOOL AT THE NATIONAL LTAP WEB SITE

BACK TO GRAVEL

Part I and II

http://ltapttapinterchange.libsyn.com

Part 1. 15:22 minutes
Follow up of a *Wall Street Journal* article that gives some clairificaiton on the "trend" of "Going Back to the Stone Age" with hard surface roads turning them into gravel roads.

Part 2. 14:34 minutes
Tune in to listen to Ken Skorseth (South Dakota LTAP) and John Habermann (Indiana LTAP) discuss some of the questons that must be answered when considering the change from an asphalt road to a gravel road.

In This Issue

BAYSTATE WORKSHOPS Coming Soon!

Invasive Species
Urban Drainage Design (NHI)
Traffic Signal Timing
Retroreflectivity

Sign Retroreflectivity Requirements

According to the National Safety Council, about half of traffic fatalities occur at night, yet only about one-quarter of travel takes place after dark. As the U.S. population ages, nighttime visibility is becoming even more of a safety concern. By the year 2030, about 19 percent of the U.S. population will be 65 or older, compared to 13 percent in 2010.[1] In general, vision and reaction times decrease with age. To enhance the safety of nighttime driving, the FHWA has set Federal standards to improve the nighttime visibility of the signs on all public streets and highways.

The sheeting used on traffic signs is "retroreflective," meaning it is designed so that light bounces back from the sign to enable nighttime visibility. Over time, the sign sheeting degrades. The FHWA standard, which is contained in the *Manual on Uniform Traffic Control Devices* (MUTCD), establishes minimum levels of sign retroreflectivity.

Phased-in Deadlines

The Federal standard governing sign retroreflectivity allows public agencies to phase in compliance according to the schedule shown at right. This allows jurisdictions to plan for sign upgrades within their existing maintenance cycles.

Public Agencies are allowed to phase-in their compliance as outlined below:

January 22, 2012
Implement a method to maintain minimum levels of retroreflectivity

January 22, 2015
Replace regulatory, warning, and ground-mounted guide signs

January 22, 2018
Replace overhead guide signs and street name signs

Flexible Compliance Methods

Agencies have until January 2012 to implement a method for maintaining traffic sign retroreflectivity at or above the minimum levels. Agencies can choose either an assessment method or a management method, or a combination of the two. The basic assessment methods are visual assessment or measuring sign retroreflectivity. If an agency wants to avoid having to assess individual signs, they can simply have signs replaced under a management program.

Compliance is achieved by *having a method in place and using the method to maintain minimum levels of retroreflectivity*. Provided that a method is being used, an agency would be *in compliance even if there are some individual signs that do not meet the retroreflectivity levels* at a particular point in time.

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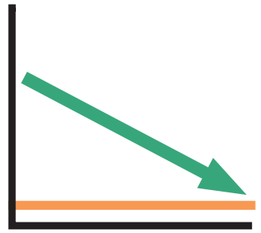
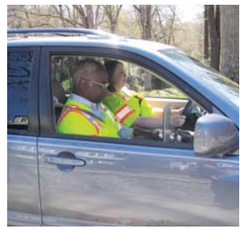
[1] Source: U.S. Census Bureau
http://www.census.gov/population/www/projections/summarytables.html

Menu of Sign Retroreflectivity Maintenance Method Options

MUTCD Retroreflectivity Test Method Requirements & Recommendations

CHOOSE FROM THESE METHODS		MANAGEMENT METHODS			ASSESSMENT METHODS			
		Control Signs Replacement Program	Blanket Replacement Program	Expected Sign Life Replacement Program	Measured Retro-reflectivity	Select Any One of These Three Visual Procedures		
						Consistent Parameters	Comparison Panels	Calibration Signs
								
EQUIPMENT NEEDS	Retrore-flectometer	Retroreflectometer Needed To Check Control Signs			*Required*			
EQUIPMENT NEEDS	Inspection Vehicle					PU or SUV	Any	Any
EQUIPMENT NEEDS	Must Know Sheet Type	*Required*	*Required*	*Required*	*Required*			
EQUIPMENT NEEDS	Inventory	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial	Not Required in MUTCD, but might be beneficial
INSPECTOR REQUIREMENTS	Trained	Training on retroreflectometer required			Training on retroreflectometer required	*Required*	*Required*	*Required*
INSPECTOR REQUIREMENTS	Age				Any	60+	Any	Any
TIME DEMANDS	At Night					*Required*	*Required*	*Required*
TIME DEMANDS	Must Stop At Signs	*Required* control signs only			*Required* every sign		*Required* Marginal Signs Only	

A method must be implemented and in use by January 2012

A blank field indicates not applicable.

Funding Eligibility

State and local road agencies may seek funding assistance through the following Federal Aid programs to help defray some of the costs related to ensuring sign retroreflectivity. Specific eligibility requirements are determined at the State and local levels. Please coordinate with partnering agencies: local Metropolitan Planning Organization; State Department of Transportation (DOTs), and the State FHWA Division Office.

Sign Management Programs: Federal programs that are possible sources of funding for setting up sign management programs include:

- State Planning and Research Program (SPR);
- Community Safety Grants;
- Highway Safety Improvement Program (HSIP), if data-supported, with link to State's Strategic Highway Safety Plan; and

Sign Replacement Programs: Federal programs that are possible sources of funding for sign replacement programs include:

- National Highway System, which provides funds for improvement to rural and urban roads in the National Highway System, including Interstate and inter-modal terminals;
- Surface Transportation Program, which provides flexible funding that may be used by States and localities for projects on any Federal highway, bridge projects on any public road, transit capital projects, and intercity bus terminals and facilities. A portion of funds reserved for rural areas may be spent on rural minor collectors;
- Interstate Maintenance Program (IMP), which provides funding for maintenance of the Interstate System;
- HSIP, if data-supported, with link to State's Strategic Highway Safety Plan; and

For More Information

FHWA Nighttime Visibility Web Site **http://safety.fhwa.dot.gov/roadway_dept/night_visib/**
Manual on Uniform Traffic Control Devices **http://mutcd.fhwa.dot.gov/**
Sign Retroreflectivity Toolkit **http://safety.fhwa.dot.gov/roadway_dept/night_visib/retrotoolkit/**
American Traffic Safety Services Association (ATSSA) Retroreflectivity Clearinghouse
http://www.atssa.com/page.ww?name=Home&section=Retroreflectivity

Local Technical Assistance Program
http://www.ltap.org/

Local FHWA Division Office
http://www.fhwa.dot.gov/field.html

Safe Roads for a Safer Future
Investment in roadway safety saves lives

U.S.Department of Transportation
Federal Highway Administration