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# Greening the Highways

## 2<sup>nd</sup> Annual Operation Clean Sweep in May

On May 23<sup>rd</sup>, 2001, volunteers from the MassHighway District and Boston offices will participate in the Agency's 2<sup>nd</sup> Annual Operation Clean Sweep. Initiated in the year 2000 by Commissioner Matthew J. Amorello, Operation Clean Sweep is a litter pickup and highway beautification event, during which volunteers will comb the State's highways, removing unsightly litter and debris.

Operation Clean Sweep gives MassHighway employees the opportunity to demonstrate their dedication and concern for our beautiful State and to raise awareness about the ongoing blight of litter.

This year's event is expected to be even more of a success than last year's, in which 860 MassHighway employees participated - cleaning more than 740 roadway miles!

The early stages of the management program took the form of Facility Audits and the development of MassHighway's Management System Improvement Plan. The audits identified the environmental issues that needed to be addressed at each facility. The Improvement Plan described the actions that would be necessary to address these issues across six major compliance areas. The major compliance areas include: releases of oil and/or hazardous material; water quality and process discharge (i.e., septic systems, floor drain, and vehicle washing); proper storage, handling, and disposal of hazardous materials and hazardous waste; storage and disposal of solid waste; underground storage tanks; and wetland restoration. An Environmental Compliance Implementation Plan was devised that identified the resources and programs necessary to address each of these issues and achieve compliance.

MassHighway's recent focus has been toward implementing a formal Environmental Management System (EMS). This has been a proactive approach in developing a compliance-based EMS, which will perform the primary functions of "Plan, Do, Check, and Act". Steps to further define and institutionalize the EMS and maintain compliance are underway. Currently, MassHighway is developing an EMS manual that will define the programs and tools which are being made available to maintain compliance. These include the identification of organizational roles and responsibilities, annual training of staff, a Facility Environmental Handbook, an Intra-Web based Facility Tracking System, Facility Audits, Pollution Prevention strategies, and the establishment of an EMS Task

## MHD Implements EMS

*David White, MHD Environmental*

As a result of Governor Weld's Clean State Executive Order 350 and a Consent Agreement with DEP, MassHighway has implemented a plan of action to bring each of its 136 facilities into environmental compliance. Over the past six years this has been achieved through the implementation of an Environmental Management Program, which is a combination of organizational, structural and systems improvements.

### Recycling Resource



#### The Chelsea Center for Recycling and Economic Development

launched by the Commonwealth of Massachusetts in 1995 to create jobs, support recycling efforts, and help the economy and the environment by working to increase the use of recyclables by manufacturers. Find out more online at [www.chelseacenter.org](http://www.chelseacenter.org)

Force. These programs and tools will provide MassHighway with the means to proactively identify and communicate environmental compliance issues.

The EMS is a major part of MassHighway's overall commitment to environmental stewardship. The continued implementation and top-down organizational commitment of the EMS will serve as an important tool in maintaining compliance at all facility locations. This will have long-term benefits of increasing worker protection, public welfare, and the environment as a whole. On its own, a formal EMS is not a guarantee to maintain compliance. However, in the event of a non-compliance issue, it will provide the blueprint and procedures to quickly and cost-effectively address the matter. The EMS ensures a more systematic approach with which to address environmental issues, resulting in a saving of tax dollars. Finally, a successful EMS will provide a long-term cost benefit that will result in more responsible and efficient government. For more information on MHD's EMS, contact David White at (617) 973-7577.

## C&D Debris Initiatives in Massachusetts

In 1999, approximately 4.7 million tons of Construction and Demolition (C&D) debris was generated in Massachusetts. Approximately 75% of this was recycled or reused in some beneficial manner with the remainder being disposed almost exclusively in landfills. Due to its large volume and potential for recyclability, the C&D waste stream has been targeted by the DEP in the Beyond 2000 Solid Waste Master Plan for specific waste reduction actions.

The DEP has recognized the following barriers to increased C&D waste reduction:

- Insufficient processing capacity and new facility siting difficulty;
- Diminishing disposal capacity for residuals;
- Diminishing reuse for fines;
- Lack of markets;
- Difficulty of source separation due to space, cost, and logistics.

Even given these barriers, the DEP has established the goal of implementing a ban on the disposal of unprocessed C&D in 2003. In the meantime, the DEP is working with government and industry through its C&D Subcommittee (of the Solid Waste Advisory Committee) to:

- Increase C&D processing capacity;
- Promote reuse, recycling, and reduction of C&D;
- Develop and promote end-use markets for processed C&D materials;
- Promote better design for recycling and source separation;
- Explore regulations, permitting requirements, and specifications.

The C&D Subcommittee has divided its membership into three workgroups, focusing respectively on source separation, processing, and market development. For more information on the C&D Subcommittee, please contact James McQuade, DEP Regional Planner, at (617) 348-4095.

*\*The majority of information in this article was excerpted from the DEP's Beyond 2000 Solid Waste Master Plan.*

## Upcoming Events

### October 30, 2001 Worcester, Massachusetts 7<sup>th</sup> Annual OSD Buy Recycled and EPP Vendor Fair and Conference

This popular 1-day conference has been expanded. This year's slate of workshop topics will feature environmental products on state contract that can actually save you money, green procurement opportunities that can reduce your disposal costs, and highlights of the local, state and national efforts currently underway to address broader issues such as climate change and sustainability. Public sector personnel, including state agencies and authorities, DPW and facility managers and staff, municipal departments, recycling coordinators and public colleges, universities and schools, are invited free of charge – but must pre-register. For more information, contact Marcia Deegler, OSD, at (617) 720-3356.

### November 13-15, 2001 Washington, D.C. Beneficial Use of Recycled Materials in Transportation Applications

This 2<sup>1/2</sup>-day event will be the first international conference hosted in the United States that exclusively addresses the use of recycled materials generated from transportation, industrial, municipal, and mining processes in transportation applications. It is intended for researchers, material generators, processors, end users, equipment suppliers, regulatory officials, engineers, recyclers, and technical consultants involved in the management of recycled materials that have potential for use as substitute construction materials. For more information see [www.rmrc.unh.edu/RMRCEvents/DC-2001.asp](http://www.rmrc.unh.edu/RMRCEvents/DC-2001.asp)

## Environmentally Preferable Products & Services Spotlight



### Recycled Plastic Safety Vests

Recently added to Statewide Contract CLT04 and available from Direct Access International, these safety vests are manufactured from 100% post-consumer recycled plastic mesh, derived from recycled soda bottles. These vests are designed with the same reflective and lightweight adjustable features as their non-recycled counterparts and are equal in quality and performance. For more information on this contract, see [www.comm-pass.com](http://www.comm-pass.com) or contact Mitchell Fine, Direct Access, at 800-811-7383 or Betty Fernandez, Operational Services Division, at 617-720-3133.



### Solid Waste & Recycling Services

The Operational Services Division and Department of Environmental Protection have awarded a Statewide Contract (#ST1J391) for the collection, disposal, and recycling of solid waste. This contract consists of a pre-approved list of contractors providing a broad array of waste management services, including the collection and recycling or disposal of Construction & Demolition, and Asphalt, Brick, and Concrete Wastes. For more information on this contract, see [www.comm-pass.com](http://www.comm-pass.com) or contact Michelle Bessler, Operational Services Division, at 617-720-3139.

pavement. According to the BUD, plastic chips are not considered to be a solid waste when stored and used in accordance with the permit's outlined conditions. Specific conditions include the following:

- plastic aggregate must conform to nationally accepted aggregate specifications;
- plastic must not be combined with any other waste, unless explicitly approved;
- processed plastic must be rigid and in the form of pellets and/or fragments obtained by grinding or cutting.

The Department (of Environmental Protection) has determined that processed plastic conforming to these specifications can be effectively substituted for virgin aggregate in cold mix asphalt pavement. However, this application has not been approved or tested by MassHighway.

For more information on this or other BUDs contact Sean Griffin of the DEP Business Compliance Division at (617) 292-5967.

The Massachusetts Department of Environmental Protection has issued a Statewide Beneficial Use Determination (BUD) for the use of processed plastic (primarily #3-#7) as a substitute for virgin aggregate in cold mix asphalt

## DEP Issues BUD for Plastic Aggregate



### From the Roof to the Road...

Did you know that waste shingles (both pre- and post-consumer) can be recycled back into asphalt pavement? The City of Worcester, in coordination with Aggregate Industries and GAF, recently paved Commercial Street using Hot Mix Asphalt containing 5% manufacturer's waste shingles. Standard paving equipment and procedures were used to install the modified top course. Pending the results of this project, MassHighway is considering the possibility of using waste shingles in MHD projects.

For more information see:

- "Evaluation of the Benefits of Adding Waste Asphalt Roofing Shingles to Hot Mix Asphalt", Ohio State University, Transportation Technology Center, Department of Civil Engineering, sponsored by Ohio Department of Transportation and Federal Highway Administration.
- "Evaluation of the Use of Manufactured Waste Asphalt Shingles in Hot Mix Asphalt", 2000, Mallick, Teto, and Mogawer. This publication is available through the Chelsea Center at [www.chelseacenter.org](http://www.chelseacenter.org) or by calling (617) 887-2300.
- [www.ciwmb.ca.gov/ConDemo/Pubs.htm#Fact](http://www.ciwmb.ca.gov/ConDemo/Pubs.htm#Fact), California Integrated Waste Management Board, C&D Publications.

# Good Housekeeping at MHD Facilities

Excerpted from a presentation by Douglas Spink, MHD Environmental

As part of its Operations structure, MassHighway maintains and manages 136 facilities across the state, each of which is responsible for one or more of the following activities: materials and equipment storage; automotive maintenance; hazardous materials storage; and hazardous waste accumulation. As part of its environmental compliance and management efforts, MHD has established some basic environmental management procedures that apply to all of these facilities:

- Identify the regulated facility activities, broken down categorically;
- Determine your compliance options;
- Establish policies/procedures for achieving and maintaining compliance;
- Designate responsible parties for achieving and maintaining compliance;
- Inspect the facility regularly;
- Document management activities;
- Correct problems immediately;
- Provide regular employee training.

Implementation of these types of good housekeeping procedures will help to create a safer, more efficient work environment; improve employee morale; and facilitate environmental compliance.

***Greening the Highways* is a  
Publication of the Massachusetts  
Highway Department  
Matthew J. Amorello  
Commissioner  
For more information, Contact  
Jessica LeBlanc, (617) 973-7820**

## Focus on Recycled Road Construction Material *Processed Glass Aggregate*

### **MHD Standard Specifications for M2.01.8 Processed Glass Aggregate (PGA)**

- This material shall consist of recycled glass food or beverage containers free of debris and manufactured from an approved supplier of crushed cullet. (M2.01.8)
- May be homogeneously blended with *Ordinary Borrow* material up to an addition rate of 10% by mass in unexposed areas. (M1.01.0)
- May be homogeneously blended with *Special Borrow* material up to an addition rate of 10% by mass in unexposed areas. (M1.02.0)
- May be homogeneously blended with *Gravel Borrow* material up to an addition rate of 10% by mass in unexposed areas. (M1.03.0)
- May be homogeneously blended with *Processed Gravel* material for *Subbase* up to an addition rate of 10% by mass in unexposed areas. (M1.03.1)
- May be homogeneously blended with *Sand Borrow* material up to an addition rate of 10% by mass in unexposed areas. (M1.04.0)
- May be homogeneously blended with *Sand Borrow* material for *Subdrains* up to an addition rate of 10% by mass in unexposed areas. (M1.04.1)
- May be homogeneously blended with *Dense Graded Crushed Stone* material for *Subbase* up to an addition rate of 10% by mass in unexposed areas. (M2.01.7)
- May be used as *Mineral Aggregate* in *Class I Bituminous Concrete* at a maximum addition rate of 10% mass (in place of RAP). (M3.11.00)

**For copies of the MHD Standard and Supplemental Specifications Books, call the MHD Cashier's Office at (617) 973-7695.**

**AASHTO Standard Specification Glass Cullet Use for Soil Aggregate Base Course** (slated for publication in the 21<sup>st</sup> edition of the AASHTO Specifications in July 2001).

- Glass cullet shall consist of broken food and beverage containers. The supplier shall be permitted to use up to 20% by mass of glass cullet in composite cullet/soil-aggregate mixtures.

**For copies of this specification see**

[www.rmrc.unh.edu/asp/RMRC\\_specifications.asp](http://www.rmrc.unh.edu/asp/RMRC_specifications.asp)

### **Publications**

- "A Tool Kit for the Use of Post-Consumer Glass as a Construction Aggregate", January 1998, Clean Washington Center Report #GL-97-5. (Available online at [www.cwc.org](http://www.cwc.org))
- "Glass Cullet Material Brief", February 1999, Texas Department of Transportation. (Available online at [ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/yrr\\_feb.pdf](http://ftp.dot.state.tx.us/pub/txdot-info/gsd/pdf/yrr_feb.pdf))
- "Reclaimed Glass Information Kit", Minnesota Office of Environmental Assistance. (Available online at [www.moea.state.mn.us/lc/purchasing/glassaggregate.cfm](http://www.moea.state.mn.us/lc/purchasing/glassaggregate.cfm))
- "Using Recovered Glass as Construction Aggregate Feedstock", 1994, Shin and Sonntag, Transportation Research Record, Record No. 1437.