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December 1, 2006

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE GENERIC ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Snow and Ice Control Program
PROJECT MUNICIPALITY : Statewide
PROJECT WATERSHED : Statewide
EOEA NUMBER : 11202
PROJECT PROPONENT : Massachusetts Highway Department (MassHighway)
DATE NOTICED IN MONITOR : August 23, 2006

As Secretary of Environmental Affairs, I hereby determine that the Generic Environmental Impact Report (GEIR) submitted on the above project requires supplemental review pursuant to the Massachusetts Environmental Policy Act (G.L. c.30, ss. 61-62H) and its implementing regulations (301 CMR 11.00). On November 29, 2006, the proponent submitted a request that its Snow and Ice Control Program's future submissions be reviewed under the Special Review Procedures, 301 CMR 11.09. As described in a separate Certificate issued today, I have established a Special Review Procedure, to replace the GEIR format, by which MassHighway shall develop an ESPR Work Plan shall be completed on or before December 31, 2007; and a subsequent ESPR. The ESPR Work Plan is to be a limited Scope document that provides a response to the comments submitted on the 1997 and 2006 GEIRs in the form of a proposed scope of work and proposed schedule for the ESPR.

I expect that, through the ESPR process, MassHighway will coordinate closely with the state permitting and resource agencies to systematically address the potential environmental impacts associated with its snow and ice control removal program.

Project Description

As proposed in 1997, the project consisted of a description of the methods used by state agencies to control snow and ice on roadways, the impact these methods have on the environment, and the mitigation implemented to compensate for these impacts. The agencies participating in this GEIR process were to include MassHighway, the Massachusetts Turnpike Authority (MTA), and the Metropolitan District Commission (MDC) (now the Department of

Conservation and Recreation (DCR)). MassHighway was the designated lead agency in preparing the GEIR. This GEIR was to be the basis for snow and ice control on state-owned roadways in Massachusetts. The purpose of this GEIR was to protect sensitive resource areas and determine whether a proactive (rather than reactive) approach is needed. The Certificate of September 24, 1997, posed three questions based on mapping of known sensitive areas:

1. Does the nature of these sensitive areas suggest that the approach to snow and ice control should be modified to provide better protection of these areas?;
2. Alternatively, is a purely reactive approach dictated by overriding public safety concerns?; and
3. Can an intermediate approach be fashioned by developing up-front knowledge of expected impacts and designing appropriate mitigation while remaining faithful to the public safety issues?

Prior GEIRs were prepared in 1978 and 1995 for Snow and Ice Control. The 2006 GEIR is a continuation of this effort by MassHighway.

Review of the GEIR

The GEIR followed the annotated outline included in the Certificate dated September 24, 1997. It included a copy of this Certificate. The GEIR did not include copies of the comment letters nor was there any formal response to these comments as required in the Certificate.

The GEIR included an Executive Summary. It described the existing snow and ice control program at MassHighway. It identified the amount of equipment deployed by MassHighway during various storm intensities. The GEIR included an organizational chart for snow and ice control at MassHighway. MassHighway has reduced the deicing material to a uniform application rate of 240 pounds/lane/mile from 350 pounds/lane/mile prior to 1976. The application rate is controlled by computerized spreader equipment that is standardized and calibrated on all MassHighway and hired equipment. For most roadways the deicing application consists of salt (straight sodium chloride) or Pre-mix. Pre-mix is a mixture of sodium chloride and calcium chloride at a 4 to 1 ratio. Pre-mix is used in most of the twenty-two designated low-salt roadway sections located throughout the state. These low-salt areas have been established by MassHighway to protect a nearby municipal water supply well or water body. Pre-mix and straight calcium chloride may be used on any roadway during low temperature events (below 20 degrees Fahrenheit (F)). The GEIR identified operating costs for snow and ice control. It summarized the tonnage used and the inches of snowfall per district. The GEIR described MassHighway's remediation program. It provided an inventory of salt storage facilities and practices. MassHighway has coordinated snow and ice control with municipalities. The GEIR compared MassHighway's programs with other New England state transportation agency snow and ice control programs.

The GEIR described the Best Management Practices (BMPs) for deicing. It identified the alternative deicing materials considered, technological advances, and alternative pavements, pre-

wetting and anti-icing, and snow fencing. MassHighway summarized its annual training and standard operating procedures. It purchased 124 new spreader/plowing vehicles in the mid-1990's and provided its supervisors with enhanced weather forecasting information and the Road Weather Information System (RWIS). RWIS provides real-time data of pavement temperature and moisture conditions from twenty-three remote locations. MassHighway has determined that fully closed drainage systems and snow bermed drainage systems provide a significant reduction in chloride load in groundwater when compared to open drainage systems.

The GEIR summarized the impacts of snow and ice control on drinking water, soils, flora, agriculture, tourism, Sugar Maples, and cranberry bogs. It identified that sand utilization for snow and ice control was ineffective. The GEIR described the impacts of snow and ice control on vehicles, bridges, and pavement corrosion/protection.

The GEIR identified that MassHighway has:

- Reduced the application rate of deicing chemicals to 240 pounds /lane mile
- Improved equipment, enhanced weather forecasting, installed RWIS, and instituted pre-wetting and anti-icing procedures
- Contaminated few water supply wells and investigated salt contamination complaints
- Covered all MassHighway salt storage facilities and provided funds for municipalities to construct salt storage facilities
- Evaluated alternatives to sodium chloride in designated reduce salt areas
- Kept abreast of equipment technology advancements
- Stated that there is a weak correlation between sodium levels in wells in Zone II areas and the distance to MassHighway roads
- Stated that there is no impact from salt application on flora, fauna, agriculture, tourism, sugar maples, cranberry bogs, and recreation
- Stated that sand is often ineffective for controlling roadway snow and ice
- Stated that snow and ice operations at MassHighway are vitally important to public safety and the economy of the Commonwealth

Scope for ESPR Work Plan

The ESPR Work Plan shall be based on formal consultation with the Department of Environmental Protection (MassDEP), the Department of Conservation and Recreation (DCR), and the Natural Heritage and Endangered Species Program (NHESP), and in coordination with the Massachusetts Port Authority, the Massachusetts Bay Transportation Authority, and the Massachusetts Turnpike Authority (as Authorities with roadway management responsibilities). The ESPR Work Plan shall present a draft scope of work that represents consensus, to the extent feasible, among MassHighway, MassDEP, DCR, and NHESP, regarding how the issues raised by the GEIR and agency comments will be addressed. The ESPR Work Plan shall identify a schedule for providing that information for MEPA review in the form of subsequent ESPRs.

Project Description

The ESPR should provide a summary/history of MassHighway's snow and ice control. It should include maps of the Commonwealth's roadways, highway districts and the locations of salt storage facilities, designated reduced salt zones, municipal groundwater supplies, and RWIS locations. The ESPR should explain why the information in the GEIR did not include snow and ice control data for the MTA or DCR. In order to make this snow and ice control program statewide, I am expanding the list of state agencies which provide snow and ice control along their respective roadways. I am requesting that MassHighway be the lead agency in this effort since it has the largest snow and ice control program statewide. MassHighway should provide correspondence from the MTA, the Massachusetts Port Authority (Massport) (Mystic/Tobin Bridge and other roads), the Massachusetts Bay Transportation Authority (MBTA), and DCR regarding their participation and cooperation with MassHighway to provide the necessary information to complete a statewide inventory of snow and ice removal within the Commonwealth.

In 2005, MassHighway was given the winter maintenance responsibility for certain urban roadways managed by DCR. These Greater Boston roadways include Centre Street, Fellsway, Fresh Pond Parkway, Jamaica Way, McGrath Highway, Mystic Valley Parkway, O'Brien Highway, Revere Beach Parkway, Storrow Drive, and the VFW Parkway. However, MassHighway does not indicate whether these roadways are included in the information presented in the GEIR. The ESPR should identify snow and ice control procedures on these DCR roadways. It should discuss snow and ice removal procedures along sidewalks and crosswalks within the right-of-way of MassHighway maintained roadways. The ESPR should identify MassHighway policy for snow and ice removal along sidewalks and at crosswalks. It should identify MassHighway snow disposal/dumping guidelines.

Response to Comments

The ESPR Work Plan should address the issues raised in comment letters on the 1997 and 2006 GEIRs. The ESPR should include copies of all comment letters listed at the end of the ENF Certificate of September 24, 1997 and this Certificate. It should provide a response to all comment letters within the scope of this project.

Draft Scope of Work

The ESPR Work Plan shall contain a draft scope of work and schedule by which MassHighway, in consultation with the agencies, proposes to address issues raised in the comment letters. I note that in supplemental comment materials, MassDEP provided a summary of recommended priority implementation actions and operational practices, which I believe can serve as the basis for agency consultation. I have attached a summary of those comments to this Certificate. I ask that MassHighway consult with MassDEP and other agencies, as appropriate, in developing a response to issues raised in the attachment.

Mitigation

The ESPR should include a separate chapter on mitigation measures/ recommendations that were incorporated from the GEIR. In the ESPR, the proponent should commit to either evaluating annually or biannually its snow and ice control policies and operational programs to respond to changing conditions. MassHighway should review the following topics during its evaluations:

- Avoidance of sensitive areas for the location of salt sheds
- Salt application rates
- Snow-fighting equipment
- Expansion or elimination of reduced salt zones
- Evaluation of spreader routes to maximize efficiency and eliminate overlap
- Consideration of alternative deicing chemicals, and the implementation of Best Management Practices (BMPs) for all MassHighway construction/repaving projects within sensitive reduced salt zones
- Salt storage management practices including housekeeping practices
- Statewide training program and materials for MassHighway personnel and snow and ice contractors

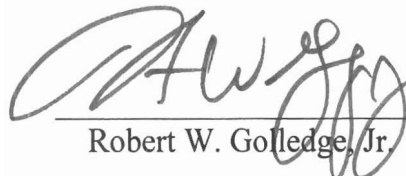
The proponent should identify the dollar amount of its recommendations/mitigation measures. In the GEIR, the proponent has already spent approximately \$44,000 for enclosing salt shed storage areas. MassHighway stated that it spends an additional \$2,000 per lane mile in designated reduce salt areas. It also reported providing \$ 230,000 to 23 municipalities to upgrade their salt storage facilities.

Circulation

The ESPR Work Plan should be circulated in compliance with Section 11.16 of the MEPA regulations and copies should also be sent to the list of "comments received" at the end of this Certificate and commenters listed on the September 24, 1997 ENF Certificate. A copy of the FEIR should be made available for public review at the State Transportation Library.

I have identified the following preliminary scope of work for the Draft ESPR. The scope will be further refined in the ESPR Work Plan.

December 1, 2006
DATE


Robert W. Golledge, Jr.

cc: Philip Weinberg, MassDEP/Boston
Stephen H. Burrington, DCR
Rick McCullough, MTA
Thomas W. Ennis, Massport
Andrew Brennan, MBTA

Comments received:

DCR, 8/28/06
Richard F. Taylor, 9/18/06
MassHighway, 9/20/06
Norton Conservation Commission, 9/21/06
MassWildlife, 9/21/06
MassWildlife, 9/22/06
Cambridge Water Department, 9/22/06
DCR, 9/22/06
Stephen H. Kaiser, 9/22/06
Riverways Program, 9/22/06
Boston Environment Department, 9/26/06
WalkBoston, 9/27/06
Richard F. Taylor, 10/9/06
Ingeborg Uhlir, 10/9/06
Canoe River Aquifer Advisory Committee, 10/10/06
Water Supply Citizens Advisory Committee, 10/10/06
U.S. Environmental Protection Agency, 10/10/06
MassDEP/Boston, 10/11/06
Connecticut River Watershed Council, 10/11/06
BED, 10/16/06
MassHighway, 10/17/06
MassHighway, 10/18/06
MassHighway, 10/27/06
Connecticut River Watershed Council, 11/9/06
MassHighway, 11/29/06

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RWG/DBB/wg

Attachment

Summary of MassDEP supplemental comments on
MassHighway's Snow and Ice Control Program

In supplemental comments on the GEIR, MasssDEP recommends that Masshighway:

1. Assess the basis for MassHighway's current salt/sand application rates, and describe:

- The basis for MassHighway's current "level of service" ("LOS") for maintaining its roads;
- Why the MassHighway's LOS and the salt/sand application rates used to achieve the LOS are higher than other New England states and New York, and
- The relationship between the existing and alternative MassHighway LOS and application rates and an increase in sodium levels to impacted public and private water supplies and other sensitive receptors (wetlands, ORWs, etc.), taking into account relevant EPA and DEP public health guidelines;

2. Assess and document the effectiveness, beneficial outcome and implementation costs associated with MassHighway's salt reduction programs, regarding:

- State-wide trends in elevated sodium levels in water supplies and other sensitive receptors located near roadways;
- Other environmental impacts from the runoff of snow removal/deicing chemicals from roadway and storage runoff into environmentally sensitive areas;
- The extent to which changes in the amount and composition of salt and other snow removal/deicing chemicals used affect environmentally sensitive areas near roadways;
- The effectiveness of management controls on practices that lead to unnecessary increases in the application of amount of salt and other snow removal/deicing chemicals used (e.g. multiple applications) and whether revisions or additions to such controls would result in improved application practices;

The effectiveness of MassHighway's *Reduced Salt Zone Policy* and recommend any further actions or modifications associated with the Policy; and

- The effectiveness of *Salt Complaint Program*, providing a list of public water systems that have filed complaints and the date and summary of the complaint,

and a summary of results of any data collected and the current status or outcome of any follow-up investigation by MassHighway.

3. MassDEP also recommends priority implementation actions more related to MassHighway's operational practices, including recommendations to:

- Implement, in accordance with a schedule developed in consultation with MassDEP, each of relevant modifications identified by these agencies to MassHighway's Stormwater Management Program ("SWMP") filed pursuant to the Small MS4 General Permit, particularly those related to water supplies (Part V.C. of the Permit);
- Establish a timely schedule for the construction of priority salt storage facilities located near water supplies (e.g., the Drum Hill facility located in Chelmsford, highlighted by MassDEP in its comments on the GEIR) and conduct all storage activities in accordance with MassDEP's *Deicing Chemical (Road Salt) Storage Guidance – Guideline No. DWSG97-1*;
- Expand the use of MassHighway's Roadway Weather Information System ("RWIS"), particularly near environmentally sensitive areas such as water supplies;
- Evaluate the extent to which an increase in the number or assignment of MassHighway personnel responsible for oversight of snow and ice removal operations would reduce impacts to environmentally sensitive areas and implement the results of the evaluation as rapidly as feasible;
- Improve and implement training and incentives for MassHighway personnel and its contractors in operational practices designed to reduce environmental impacts including, but not limited to, the regular inspection and calibration of spreader equipment and the proper washing of vehicles;
- Develop and implement planning measures and operational practices, in consultation with DCR and MassDEP, applicable to those DCR parkways that are maintained by MassHighway, including the use of snow fences and the proper disposal of snow in accordance with MassDEP's *Snow Disposal Guidance – Guideline No. BRPG01-01*; and
- Continue and expand MassHighway's efforts to research, develop and use alternative anti-icing and deicing agents.

