

OTTAWA COUNTY ROAD COMMISSION

SALT MANAGEMENT PLAN

Adopted by the Board of County Road Commissioners on August 26, 2004

BACKGROUND

Ottawa County's road system consists of about 400 miles of primary roads and 1,240 miles of local roads, 380 of which are unpaved. In addition, the Ottawa County Road Commission maintains 481 lane miles of State Trunkline within the county limits. Residents of Ottawa County and the State of Michigan rely on this roadway network throughout the year for transportation to and from the workplace and recreation facilities, for the transport of goods and services, and for emergency services.

Snow and ice conditions during the winter months have a significant impact on the function of this roadway network, dramatically affecting public safety, roadway capacity, travel time and economic costs. With the technology currently available, the Ottawa County Road Commission must use road salt and chlorides to maintain reasonably safe roads for the residents of Ottawa County and the State of Michigan.

Although public health departments and the Department of Environmental Quality have not defined specific limits which might be harmful to humans, there are concerns that road salts are entering the environment and are posing a risk to plants, animals, birds, fish, lakes and streams and groundwater. In addition, studies performed through the MSU Extension indicate that salt may be causing damage to blueberry crops planted adjacent to roadways.

In 2004, a Salt Commission was formed to attempt to address these environmental concerns. The Salt Commission consisted of representatives from the County of Ottawa, The Ottawa County Road Commission, The Ottawa County Sheriffs Department, The Ottawa County Health Department, The Michigan Department of Transportation, The Michigan Department of Environmental Quality, The Michigan State Police, The Michigan State University Extension Service and several affected blueberry farmers. One of the recommendations of the Salt Commission was that the Ottawa County Road Commission form and implement a Salt Management Plan.

PURPOSE OF THE PLAN

The purpose of this plan is to better manage the use of road salt in light of the concerns about the effect road salt may have on the environment while continuing to provide for road safety.

The Salt Management plan sets out a procedural framework for the Ottawa County Road Commission to continually improve the management of the use of road salt in winter maintenance operations.

The Road Commission's winter maintenance activities shall be carried out in a way that provides for reasonable roadway safety and user mobility consistent with the weather conditions experienced during the winter season.

It is imperative that this plan be flexible, allowing the Road Commission to phase in new technology in a way that is consistent with its fiscal responsibilities and its responsibility to ensure that roadway safety is not compromised.

PLAN STATEMENT

The Ottawa County Road Commission will perform its winter maintenance operations utilizing de-icers in an environmentally sensitive manner while providing for reasonably safe road conditions. In performing its maintenance operations, de-icers shall be used as appropriate in a manner that mitigates potential impacts of salt on the environment.

The goal of the Ottawa County Road Commission is to provide winter maintenance in an effort to achieve reasonably safe winter conditions for vehicular traffic in accordance with service guidelines contained herein and in accordance with guidelines established by the Michigan Department of Transportation and/or the Ottawa County Road Commission within the funding guidelines established by the State of Michigan and the Ottawa County Road Commission while striving to minimize the effects of road salt on the environment. To accomplish this, the Road Commission will:

- Follow the guidelines contained within the Salt Management Plan when reasonably possible or practical.
- Annually review and upgrade, the guidelines contained in the Salt Management Plan to take into account new materials, technologies and developments.
- Work with other transportation agencies and concerned environmental groups in order to consider and evaluate alternative winter maintenance procedures within the constraints of this plan.
- Commit to ongoing staff training and education.

APPLICATION

This plan is adopted by the Ottawa County Road Commission and applies to all employees involved in winter maintenance operations.

CONDITIONS

On-going review and refinement of the Salt Management Plan will be based on the following:

- Periodic review and analysis of industry practices.
- Implementation and documentation of the plan.
- Education and training of the staff.
- Monitoring and analysis.
- Management review.
- Environmental review.
- Practices and plan revisions.

WINTER MAINTENANCE PRACTICES AND GUIDELINES

Levels of Service:

All Roads in Ottawa County have been categorized by classification and/or traffic volumes to assist in the development of recommendations for level of service of treatment. These categories are as follows:

1. MDOT State Trunkline.
2. High Volume Primary & Local.
3. Medium Volume Primary and Local.
4. Low Volume Primary and Local with speed limits of 30 mph or greater.
5. Low Volume Local with speed limits of 25 mph or less (subdivision streets).
6. Unpaved Roads.

Levels of service will be as follows:

MDOT Trunklines: Treat in accordance with MDOT's assigned minimum level of maintenance.

For State Trunklines with Average Daily Traffic greater than 5,000 vehicles per day, MDOT's maintenance guidelines require that the Road Commission "Provide maintenance service as appropriate under prevailing weather conditions with a goal of providing a pavement surface generally bare of ice and snow." This classification includes all state trunklines in Ottawa County.

County Roads:

High Volume Primary and Local: Provide maintenance services as appropriate and apply chemicals during and after a snow event.

Medium Volume Primary and Local: Provide maintenance services as appropriate to provide a pavement surface generally bare of snow and ice in the center portion of the roadway sufficient for one wheel track in each direction. Clearing the pavement of snow and ice over the entire width will be accomplished as soon as reasonably possible after the storm event.

Low Volume Primary and Local with Speed Limit 30 MPH or higher: Plow snow as necessary to provide a surface that is passable, but yet snow covered. De-icing chemicals and/or abrasives to be applied only at intersections, curves and critical hills. Under extreme ice and/or snow pack conditions, general application of chemicals/abrasives may be made with authorization of the District Supervisor.

Low Volume Local Roads with Speed Limit 25 MPH or less: Plow snow as necessary to provide a surface that is passable, but yet snow covered. De-icing chemicals and/or abrasives to be applied only at intersections and critical hills. Under extreme ice and/or snow pack conditions, general applications of chemical/abrasives may be made with authorization.

Gravel Roads: Plow snow as necessary to provide a surface that is passable, but yet snow covered. No general application of de-icing chemicals except in emergencies.

In all cases, special consideration may be made for:

- roads near facilities which generate high volumes of traffic for a short duration.
(e.g.: Schools, sports facilities, churches)
- areas with high accident experience.
- when requested by emergency services for protection at an accident/fire scene.
- when reasonably necessary and practical to provide for reasonable traffic safety.

Methods of treatment:

General:

Rock salt is not to be applied on a clear pavement.

No rock salt is to be applied until the road surface has been plowed as clear as practical. General application of rock salt will be re-evaluated before applying at temperatures less than 20 degrees. Below 20 degrees, application of rock salt/abrasive mixtures may be placed at lights, intersections, critical curves and extremely hazardous areas.

Due to the potential for anti-icers to freeze when diluted by precipitation from a snow/ice event, thereby making application of salt necessary, the use of anti-icers will be limited to MDOT Trunklines and High Volume County Routes where bare pavements are desirable.

SALT MANAGEMENT PLAN GOALS

ACTIVITY	GOALS
LEVEL OF SERVICE	The level of service guidelines will be reviewed and updated as needed.
USE OF ROCK SALT	-A county wide reduction in the use of rock salt of 25 percent is desired in the 5 year period beginning in the 2004-2005 winter season. -In salt sensitive areas a reduction in the use of rock salt of 75 percent is desired in the 3 year period beginning in the 2004-2005 winter season.
PRE-WETTING	Pre-wetting has been installed on 9 units from 2002-2004. Immediate plans are to install prewetting on 4 additional units. Consideration is being given to prewet all rock salt by the fall of 2006.
ANTI-ICING	An anti-icing unit was placed in operation on a trial basis for the 2003-2004 winter. Consideration is being given to place 3 additional anti-icing units in operation by the fall of 2006.
SPREADER CALIBRATION	Approximately 50% of units are currently equipped with calibrated ground speed controllers. All replacement units (approximately 8% per year) will be equipped with calibrated ground speed controllers. All units will be calibrated each fall. Calibration will be verified as needed.
RECORD KEEPING	Records of salt, anti-icing and pre-wetting materials used will be maintained for each road system (MDOT, County Primary and Township Local) and summarized each winter season.
SALT/LIQUID STORAGE	All salt is currently stored on impermeable pads, with runoff discharging into detention ponds or sanitary sewer systems. Pollution Incident Prevention Plans are in effect at each facility to address accidental spills. It is the goal of the Road Commission to have inside salt storage at all garages by the year 2010. All liquid storage currently conforms to DEQ guidelines
SAND/SALT BLENDS	Being mindful of air and stream quality and negligible effectiveness for ice control, the Road Commission will investigate how it can reduce the ratio of salt in salt/sand blends.
RWIS (Road Weather Information Systems)	The Road Commission will investigate the potential effectiveness of RWIS in Ottawa County.
WINTER PATROL	From November to April, the Road Commission will maintain winter patrols 24 hours a day in vehicles equipped with pavement temperature sensors.
EQUIPMENT WASHING	All equipment washing shall be performed indoors, with washwater passing through oil/water separators before being discharged.

SALT MANAGEMENT PLAN GOALS

(CONT'D)

ACTIVITY	GOALS
AVL (Automated Vehicle Location)	-The Road Commission will investigate the merit and cost of the use of AVL utilizing GIS/GPS technology for monitoring of plow trucks and salt spreaders. A pilot program will be considered.
COMMUNICATIONS	-Information on the Road Commissions approach to winter maintenance and salt management will be made available to the public via the website and media. -Annual “pre-winter” meetings will be scheduled with law enforcement and school transportation officials to discuss goals in winter maintenance.
TRAINING	-Training will be presented in the following areas: <ul style="list-style-type: none"> - Interpretation of weather and pavement conditions in making snow and ice control decisions. - Level of Service to be provided. - Location of and treatment in environmentally sensitive areas. - When and how to apply chemicals. - Use of liquid chemicals for pre-wetting and anti-icing. - Record keeping. - To keep current with national practices and new technology, supervisory personnel will attend and participate in local and regional training conferences sponsored by organizations such as Michigan Department of Transportation and the American Public Works Association.

ADDITIONAL CONSIDERATIONS FOR SALT SENSITIVE AREAS

SIGNING	-Signs identifying salt sensitive areas will be placed along the roadway. Legend, size and color of such signs to be agreed upon by the Michigan Department of Transportation and the Ottawa County Road Commission.
ALTERNATIVE MATERIALS	-Special consideration for alternative treatments and materials for salt sensitive areas will be given. The Road Commission and the Michigan Department of Transportation will pursue supplemental funding from other sources if the cost of alternative materials is prohibitive for their operating budgets.
PRE-WETTING	-All trucks applying de-icing materials in salt sensitive areas will be equipped with the capability of pre-wetting the material to reduce necessary application rates.
ANTI-ICING	-Major routes, which require a higher level of service will be pre-treated with anti-icing materials.
SPREADER CALIBRATION	-All trucks applying de-icing materials in salt sensitive areas will be equipped with calibrated ground speed controllers.
SALT/SAND BLENDS	-The Road Commission will investigate reducing the percentage of salt in the salt/sand blends in sensitive areas.