

**APWA**

AMERICAN PUBLIC WORKS ASSOCIATION

**2011**

**American Public Works Association  
Excellence in Snow and Ice Control Award**



**Recipient:**

**Orangetown Highway Department**

**February 16, 2011**



AMERICAN PUBLIC WORKS ASSOCIATION

Your Comprehensive  
Public Works Resource

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February 16, 2011

Mr. James J. Dean  
Superintendent of Highways  
Orangetown Highway Department  
119 Route 303  
Orangeburg, NY 10962

Dear James:

Congratulations! The Town of Orangetown has been selected as one of APWA's Excellence in Snow and Ice Control Award winners for the year 2011. We are pleased to inform you of this honor and the American Public Works Association is proud to have you represent the public works profession and our association.

The award presentation is held in conjunction with the APWA North American Snow Conference, if you elect to participate in this informative and educational conference you will be responsible for any associated travel costs and registration fees. This year the winners will be asked to provide a panel session with the other two recipients, City of Farmington Hills, MI and City of Worcester, MA at the North American Snow Conference on Monday, April 11<sup>th</sup> from 3:30 – 4:30 pm. To find out more information about this session please contact APWA staff Phyllis Muder, Continuing Education Project Manager at 800-848-2792 x 5211.

For additional information about the APWA North American Snow Conference held April 10-13, 2011 at the Spokane Convention Center, Spokane, Washington, please visit our website at [www.apwa.net/snow](http://www.apwa.net/snow).

If you have any questions or need additional information, please do not hesitate to call me at 800-848-2792 x 5261.

Sincerely,

Rhonda Wilhite  
Chapter Coordinator

cc: Stephen Munno, Nominator  
John Scherer, Chapter President  
Ed Gottko, Regional Director

Enclosures



# Table of Contents

## Town of Orangetown

- Description ..... Page 4
- Highway Department Mission ..... Page 4
- Town of Orangetown Superintendent of Highways ..... Page 4
- Highway Department Snow and Ice Control Policy ..... Page 5
- Highway Department Environmental Policy For Salt Storage ..... Page 5

## Town of Orangetown Snow and Ice Control Categories

1. Materials & Handling ..... Page 6
2. Equipment ..... Page 8
3. Training ..... Page 8
4. Community Outreach ..... Page 10
5. Technical ..... Page 12
6. Environmental ..... Page 13



## Town of Orangetown Description

The Town of Orangetown is located in Rockland County, New York. Orangetown is a “bedroom community” located 20 miles north of New York City. Traversing through the Town are major road, bus and rail networks, which includes the New York State Thruway (I 287/ 87), the Palisades Interstate Parkway, the Metro North Railroad Commuter Rail Line, the Coaches USA Commuter Bus Service and the CSX Transportation Cargo Distribution rail.

The Town of Orangetown is home to 231 miles of Town, County and State roads, 11,500 residential, multi-family and commercial parcel units and over 35,000 residents.

## Town of Orangetown Highway Department Mission

The Orangetown Highway Department is dedicated to providing safe, courteous, dependable and economical service, wherever and whenever possible for all our residents.

## Town of Orangetown Superintendent of Highways

James J. Dean is the Town of Orangetown Superintendent of Highways. Jim’s career in the Highway Department and service to the community began over 50 years ago. He rose through the ranks of laborer to a Motor Equipment Operator (MEO) in 1964; from MEO to Highway Maintenance Supervisor (HMS) in 1969 and from HMS to Assistant General Foreman in 1982. In 1989 he became General Foreman and served in that position until he was elected to Superintendent of Highways in 1998. Jim is accredited as a Road Master II by the Cornell University Local Roads Program.

Jim and the Orangetown Highway Department have been featured in the **November 2007 edition of the Superintendents Profile and Product and Service Directory.**

Jim is a Past President of the New York Metropolitan Chapter of The American Public Works Association and is still very active in the Association. He currently serves as the Education Chairman to the Chapter and coordinates APWA Click, Listen and Learn Programs and “Hot Topics” Seminars. He has been requested to speak at conferences, seminars and training programs. Below is a list of Venues and Presentations:

- **2003 APWA Snow Conference in Quebec** – Unique Ways of Communicating With the Public and the Media During Snow Events
- **2004 New York State Association of Town Superintendents of Highways Annual Conference** – Reverse 911, New Tool Added to the Old Mix
- **2005 New York Metropolitan Chapter of the APWA Hot Topics Seminar** – Winter Maintenance Pollution Prevention Measures
- **2009 APWA Click, Listen and Learn** – Asphalt Pavement Preservation



## **Town of Orangetown Highway Department Snow and Ice Control Policy**

It is the Town of Orangetown Highway Department's policy to provide a transportation system that is passable and reasonably safe as much of the time as possible within the limitations imposed by the natural environment and the availability of equipment, material and personnel resources. This aforementioned system contains 206 miles of roadway, which includes snow and ice control on 145 miles of Town roads, 45 miles of State roads and 16 miles of County roads.

The Highway Department's primary concern is keeping all roads open for emergency response and vehicular traffic. From November to April, when snow or icy conditions are likely, the Orangetown Highway Department, with its 25 snow and ice control routes, is geared up to meet this responsibility. Our snow and ice control plans take into account the possible need to get such vehicles into any area of Town.

A Highway Maintenance Supervisor is always available to clear snow on any primary or secondary road to enable emergency vehicles to reach a specific location. Special attention is given to areas that have places of public assembly such as municipal buildings, houses of worship, schools, etc., and direct contact is maintained with four (4) local school district transportation departments to coordinate the movement of students as well as communication with larger employers to accommodate their schedules. In addition to material application, for anti-icing, de-icing and plowing, the Highway Department removes snow from the business districts in hamlets of Pearl River, Tappan, Blauvelt and Sparkill after heavy storms.

Additionally, highway crews clear 15 miles of Safety Sidewalks, clean and clear 25 bus shelters and clean and clear snow and ice away from drains and catch basins in order to prevent flooding. Further, at locations where tire traction may be a problem, highway crews place barrels with a salt/sand mixture to be used by motorists. These barrels are refilled after every storm.

Similar to other communities that endure harsh winters, it is the Town of Orangetown Highway Superintendent's responsibility to maintain balance when managing services provided, budgetary funds, safety of the traveling public and environmental pollution prevention necessary for snow and ice control.

## **Town of Orangetown Highway Department Environmental Policy for Salt Storage**

The purpose of this environmental policy is to ensure that there is no intrusion of salt into the environment of the Town of Orangetown and to store all salt in a covered facility which provides protection against leaching, runoff and erosion in all weather conditions.



# 1. Materials & Handling

The Town of Orangetown Snow and Ice Control Storage Facility is located in the Highway Department Yard. Materials stored at this location are Road Salt, Salt brine and Enviro-brine.

## A. Granular Sodium Chloride (Road Salt)

**Road Salt** is stored in a Domar salt storage dome measuring 81 feet in diameter and 40 feet high with passive ventilation ducts on top. The dome was built by the manufacturer and constructed with materials requiring no special treatment. The dome is built on an impervious foundation to prohibit groundwater leaching and is elevated above existing ground and graded down to prevent surface water from reaching salt stockpile.

A clean and safe environment is a primary responsibility of this department. The salt storage dome, loading ramps, loading pads and all adjacent areas must be kept clear of spilled material. Any materials not under cover provide a potential to pollute the environment. The salt storage dome has a stockpile capacity of 3,000 tons. This stockpile is closely monitored and not allowed to exceed rated capacity. No spilled salt is allowed to remain exposed to weather. Areas where spillage occurs are swept by a truck mounted vacuum sweeper. All material picked up by the sweeper is returned to the covered stockpile.

Weekly inspection of salt storage and loading area is conducted by the Assistant General Foreman. Findings and recommendations are delivered to the General Foreman after inspection is completed.

## Salt Storage Awards

The Town of Orangetown Highway Department was awarded the “Excellence in Storage” Award for the Salt Storage Facility from the Salt Institute of North America in 1990. In 2010 The Highway Department received the “Continuing Excellence in Storage” Award from the Salt Institute of North America for the 15<sup>th</sup> consecutive year.

This honor recognizes high standards of environmental protection and worker safety. Applicants must meet rigorous standards that include employee safety programs, proper salt storage facility “housekeeping measures, and protection from rain and snow”. Winners exemplify state-of-the-art commitment to environmental and worker protection.

## Future Plans

The Highway Department is in the process of securing funding for the design and installation of an underground containment tank to capture 1<sup>st</sup> flush from the road salt storage dome handling area. The tank will capture the run-off from the salt-handling area and be discharged to a holding tank where it will then be processed by our salt-brine manufacturing facility.



## **B. Salt-brine**

In addition to the Highway Department's process of de-icing roads by applying granular sodium chloride (road salt) to a snow covered road surface, the Highway Department utilizes salt-brine to pre-treat Town roads.

In 2003 the Highway Department purchased a Reed Systems Salt-brine Manufacturing Facility constructed and installed by the manufacturer. This facility mixes road salt and water to a 23% solution (salt-brine). This facility can produce up to 22,500 gallons at a time and is stored in six storage tanks. The Highway Department mixed its first batch of salt-brine on January 20, 2004 and is currently producing salt-brine at a cost of \$.10 per gallon.

The Orangetown Highway Department is the first municipality in the New York Metropolitan Region to install this state-of-the-art facility and the Department introduced the use of salt-brine to the region.

In anticipation of a snow storm, usually 12 to 24 hours in advance, the Highway Department's four liquid applicator trucks spray 50 (fifty) gallons of salt-brine per lane mile on main roads and other critical areas of the Town. This pre-treating process is known as Anti-icing. Anti-icing has proven to prevent the bond of snow to the paved road surface. Tire tracks show bare pavement, reducing the amount of road salt needed to prevent future bonding.

Salt-brine is also used to pre-wet the de-icing salt. Wet salt is less apt to bounce or be blown off the road by traffic. Pre-wetting can result in a 20% to 30% reduction in wasted salt. The less salt used, the less potential for pollution.

## **C. Envirobrine**

For freezing temperatures of 20 degrees or lower, the Highway Department previously used Magnesium Chloride to combat snow and ice. In an effort to maintain our stringent environmental policy, the Highway Department has begun to utilize the product Envirobrine.

This brine, a mixture of calcium chloride, sodium chloride, magnesium chloride and potassium chloride, is pumped from an ancient, naturally occurring source 3000' below the Earth's surface. Because the source is estimated to be 400,000,000 years old and is naturally occurring, it is very stable and does not contain suspended solids that would cause handling problems at cold temperatures. It has been field tested to -30F and did not cause pumping problems. No solids were observed settling out of the solution. Because it comes from a naturally occurring source, the brine does not contain heavy metals or chemicals that would present an environmental liability.



## 2. Equipment

The Town of Orangetown Highway Department utilizes a Snow and Ice Control fleet of 29 Heavy Duty Snow Plow Trucks which are equipped with granular sodium chloride (road salt) spreaders, four (4) liquid applicator (anti-icing) trucks, four (4) Medium Duty Snow Plow trucks equipped with road salt spreaders, four (4) Wheel Loaders, two (2) bombardier sidewalk snow plows/snow blowers, two (2) trackless sidewalk snow blowers, three (3) compact utility loaders, three (3) Hybrid Sport Utility Vehicles and one (1) belt loader.

All of the Heavy Duty Snow Plow Trucks on the Highway Department's 25 snow and ice control routes are equipped with a computerized controller capable of delivering accurate amounts of road salt in pounds per lane mile as well as pre-wet system to add salt-brine to the de-icing salt. As stated previously, wet salt is less apt to bounce or be blown off the road by traffic which can result in a 20% to 30% reduction in wasted salt. All of the computerized salt controllers are calibrated on an ongoing basis throughout the fall and winter months.

All of the Heavy Duty Snow Plow Trucks on the Highway Department's 25 snow and ice control routes are also equipped with an AVL (Automatic Vehicle Locator) system. This system reports the location and status of the snow plow trucks to better assist with fighting the storm.

Additionally, all of the vehicles in the Snow and Ice Control fleet are equipped with two way radios and pavement temperature sensing devices.

## 3. Training

The Orangetown Highway Department considers the Annual Training and Review of Snow and Ice Control Procedures to be an integral element of its operation. The general benefits of training include:

- promoting a positive attitude
- maintaining good health
- increasing job knowledge and skills, and
- boosting the confidence of the employee, which enables him to capably perform his job and accomplish the Highway Department's mission.

Specifically, however, training also addresses key points of the Highway Department's Snow and Ice Control Procedures.

The Highway Department has developed a Snow and Ice Control Procedures Employee Review powerpoint presentation which includes:

- **Being Prepared!**
  - Review Plow Run
  - Inspect Truck and Equipment
  - Monitor Weather Reports



- **Operation Procedures**
  - Salt application rate
  - Plow adjustment
  - Main and Secondary Road Salt Application
  - Opening and Widening Roads
  - Hazard awareness
- **Post Storm Procedures**
  - Sidewalk clearing
  - Catch basin clearing
  - Business district snow removal
  - Plow and spreader maintenance
- **Truck Operation**
  - 4 wheel drive controls
  - Plow equipment and operation
  - Spreader and Plow controls
  - Spreader Equipment, and
- **Safety**

The following is a list of tools in our safety training tool box utilized annually:

**American Public Works Association Click, Listen and Learn Training CDs**

- Winter Roads: Effective Use of Chemicals and Abrasives for Winter Road Maintenance
- Salt Brine: Breaking Snow and Ice Bonds on Your Pavement
- Ready, Set, Plow: Tips and Tasks for Preparing Your Fleet for Snow Season

**Videos**

- Anti-Icing and De-icing
- The New Generation of Snow and Ice Control

**Cornell Local Roads Program**

- Annual Highway School and Training

**Superintendent of Highways Association of Rockland County in Conjunction With Cornell Local Roads**

- Snow and Ice Control and Operational Safety for Operators-Full Day Training Program

**Town of Orangetown Highway Department Annual Training**

- Snow and Ice Control Training Full Day Employee Review of Snow Routes, Equipment, Operations and Safety



## **Manuals and Standard Operating Procedures**

- Orangetown Highway Department Snow and Ice Control Plan
- Orangetown Highway Department Environmental Policy for Salt Storage
- Orangetown Highway Department Snow and Ice Control Procedures
- Orangetown Highway Department Geographic Information System Snow Plow Routes
- Orangetown Highway Department Snow Emergency Routes
- Orangetown Highway Department Safety Sidewalk Routes
- Orangetown Highway Department Winter Emergency Call-Out List
- Orangetown Highway Department Three Levels Of Emergency Response
- Town of Orangetown Emergency Response Plan

## **4. Community Outreach**

Increasing communications between the Highway Department and citizens is critical in our response to an emergency. If we fail to communicate the “real story”, the “imagined story” will be much worse and result in lost time and personnel, responding to rumors and misinformation.

### **Agency education/involvement**

- **City Watch “Reverse 911” – Emergency Notification System**

The “Reverse 911” system is a multi-featured automated Inbound and Outbound messaging system used to enhance our public safety notification efforts.

As a Public Safety agency, the Highway Department is challenged to communicate with many different groups in a timely manner. During a snow emergency, the “Reverse 911” system provides the Highway Department with an effective application for community notification such as emergency response, emergency alerts, flooding alerts and other weather warnings.

- **Portable Message Sign Boards**

Additionally, the Highway Department makes use of its two (2) portable message sign boards for community notification. Should additional message sign boards be needed, the Department may request them from the Rockland County Highway Department and the New York State Department of Transportation.

### **Commercials/media**

The Town of Orangetown uses a proactive approach to delivering information to residents and the business community via live coverage from our local cable news channel (News 12) and NYC News Stations, local newspapers and local radio stations.

News 12 has become our best way to communicate up to the minute information during snow and ice emergencies. During every snow and ice event, contact is made between our department



and the news channel to discuss road conditions, updates on our plan of operation, and motorist advisories.

Periodically, newscasters come to our location to conduct live interviews, film our operation in progress and most recently a cameraman from within one of our plow trucks during snow and ice control operations.

The Town coordinates with the local newspapers before, during and after storms. Whether it be general information in a press release or a front page news story, our local newspapers act as both a current event and potential historic news document.

### **Website**

The Highway Department has a web page and information links on the Town of Orangetown website. Included in the links are the following:

- Winter Safety Gram
- Winter Safety Tips and Suggestions.
- Frequently Asked Questions
- Emergency phone numbers for Highway, Police, Government and Utilities
- Snow Emergency Routes list
- Geographic Information Systems Snow Plow Routes Map
- Geographic Information Systems Safety Sidewalks Map

### **Mailings/brochures**

A brochure called “Winter Safety Gram” was created to help educate Orangetown citizens on winter road and sidewalk safety. The safety gram promotes “being a part of the Highway Department team.” The safety gram leads with a message from the Superintendent of Highways and follows with addressing: being prepared for snow, dealing with the falling snow, when the snow is over, parking and travel regulations, FAQ’s, tips and suggestions and customer satisfaction.

### **School outreach**

- **Annual Highway Department Open House**

In conjunction with American Public Works Association, the Highway Department sponsors an “Annual Open House” during “National Public Works Week.” An advertisement is posted in the local newspaper and fliers are distributed to all the schools in the Town.

Orangetown residents and their families are invited to come tour the Highway Department Facility, witness equipment demonstrations, and learn more about the operation of the Orangetown Highway Department. Over 400 people attend annually.



## 5. Technical

### Road Weather Information System

- **DTN Meteorlogix Weather Sentry**

In addition to monitoring daily online weather forecasts in anticipation of snow events, the Highway Department employs the DTN Meteorlogix Weather Sentry. The Weather Sentry gives the Department accurate real time information needed to make weather related Highway Department decisions.

Weather Sentry is a desktop computer application which offers real-time weather graphics, active storm tracking and weather alerting for potentially hazardous storms. Having the Weather Sentry puts the National Weather Service alerts, watches and warnings right on your fingertips by allowing the capability of being accessed on your computer and mobile phone.

With the most accurate information, the Highway Department can make the most appropriate weather related decisions, plan more effectively, document weather related situations and reduce costs.

- **Infrared Road Surface Thermometers**

All of the vehicles in the Highway Department's Snow and Ice Control Fleet are equipped with infrared thermometers which monitor ambient and road surface temperatures. Aside from monitoring weather conditions, the thermometers assist supervisors and crews with the application of road salt, salt brine and envirobrine.

- **Video Vehicle Detection System**

In 2010, The Highway Department has instituted an annual Traffic Signal Replacement Program. Based on available funds, traffic signals are being replaced, upgraded or retrofitted. As with the retrofit of the traffic signal located on Central Avenue and Main Street in the hamlet Pearl River, all intersections will be equipped with a video vehicle detection system (vvds). The VVDS not only monitors vehicles for traffic signal timing, it also allows the Highway Department to monitor weather and road conditions at all major intersections.

As the Highway Department has been officially recognized as a "First Responder," the Department is in the process of establishing a second Town Emergency Command Center on premises. This command center will contain the entire network of cameras for intersection monitoring.

### Geographic Information System

The Highway Department geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.



GIS allows the Highway Department to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts.

As an application for the Highway Department, GIS is used to map Snow Plow Routes, Safety Sidewalk Routes, route measurements, route locations, route names and route types. All of these uses assist the Highway Department carry out its mission.

- **Previous Technical Equipment References**

- Automated Vehicle Locating System.....Page 6
- Infrared Road Surface Thermometers.....Page 7
- “Reverse 911” System.....Page 8

## 6. Environmental

As responsible public servants, the Town of Orangetown Highway Department is committed to being environmentally sensitive in all aspects of its Snow and Ice Control Operation. As previously noted throughout the document, the following is a summary of how Highway Department facilities, materials, storage and handling, equipment and technology assists in preserving the environment.

### I. **Town of Orangetown Highway Department Environmental Policy for Salt Storage**

- The purpose of this environmental policy is to ensure that there is no intrusion of salt into the environment by storing all salt in a covered facility which provides protection against leaching, runoff and erosion in all weather conditions.

The Town of Orangetown Highway Department was awarded the “Excellence in Storage” Award for the Salt Storage Facility from the Salt Institute of North America. This honor recognizes high standards of environmental protection and worker safety. Applicants must meet rigorous standards that include employee safety programs, proper salt storage facility “housekeeping measures, and protection from rain and snow”. Winners exemplify state-of-the art commitment to environmental and worker protection.

- ### II. **Town of Orangetown Highway Department Equipment** - All of the Heavy Duty Snow Plow Trucks in the Highway Department’s 25 snow and ice control routes are equipped with a computerized controller capable of delivering accurate amounts of road salt in pounds per lane mile as well as a pre-wet system to add salt-brine to the de-icing salt. Using salt-brine for Anti-icing has proven to prevent the bond of snow to the paved road surface. Tire tracks show bare pavement, reducing the amount of road salt needed to prevent future bonding. Salt-brine used to pre-wet de-icing salt makes the salt is less apt to bounce or be blown off the road by traffic. Pre-wetting can result in a 20% to 30% reduction in wasted salt. The less salt used, the less potential for pollution.



- III. **Alternative Chemicals** - In an effort to maintain our stringent environmental policy, the Highway Department has begun to utilize the product Envirobrine for freezing temperatures of 20 degrees or lower. Because it comes from a naturally occurring source, the brine does not contain heavy metals or chemicals that would present an environmental liability.
- IV. **Technical** – The Orangetown Highway Department has and will continue to embrace new technology as a means for pollution prevention, public safety and cost savings. The Weather Sentry, Infrared Road Surface Thermometers, Video Vehicle Detection Cameras and GIS are important tools in the Highway Department’s Snow and Ice Control Operation and Pollution Prevention toolbox.

