

A photograph of a snowplow clearing a residential street in Stafford Township during a winter storm. The scene is covered in snow, with houses and trees visible in the background. The snowplow is moving from left to right, leaving a cleared path behind it. The sky is overcast and grey.

Stafford Township
Department of Public Works
2011 – 2012 Snow Removal Program

Ronald A. Cop, Superintendent

Why Snow-fighting?



**Snow Covered
Roads**

**Unsafe Driving
Conditions**



Why Snow-fighting?

Together as a public officials, we have the responsibility of a safe transportation system



Every responsibility carries liability

Effective, efficient & safe snow fighting fulfills your responsibility & decreases your liability

Why Snow-fighting?

- **Slippery Snow-Covered Roads Create Havoc.**
- **Vehicular Crashes Multiply with an Increase in Deaths, Injuries and Property Damage**



Why Snow-fighting?

- Traffic Gets Jammed
- Congestion Causes Frustration, Lost Work
- Schools Close Requiring Parents at Home



Why Snow-fighting?

- **Emergency Operations are Hampered or Cease to Operate**
 - **Police**
 - **Fire**
 - **Emergency medical services**
 - **Hospitals**



Why Snow-fighting?

- **Businesses are Stranded and Close Down**
- **Production is Lost with Substantial Lost Dollars**
- **Workers Suffer with Lost Wages**
- **Consumer Buying Decreases Significantly**



Why Snow-fighting?

- Loss of Revenue in the Northeast U.S. Caused by the Blizzard of 1996:

\$19 - \$22 Billion

- Losses for a 5-day Road Shutdown in the City of Milwaukee in 1993:

\$17 Million business loss

\$22 Million personal income loss



Why Snow-fighting?

- Your Liability Hits the Ceiling
- Trial Lawyers Have a Field Day



Statistics

- **Over 203 Million Vehicles in the U.S.**
- **Over 2.6 Trillion Miles Driven**
- **80% of Inter-city Traffic is by Vehicle**
- **70% of all Commuters use Personal Vehicles**

Statistics

- **Population and the Driving Public Continues to Increase**
- **Businesses & Manufacturing Rely on 'Predictable Delivery'**
- **Potential Businesses Evaluate Transportation Reliability in Selecting Locations**

Results

- People Demand Mobility and a Safe Transportation System
- Drivers Demand Safe Accessible Roads, Even in the Wintertime.

Good Government
+ *Good Winter Maintenance*
= Safe and happy residents

The Marquette University Report

- Studied Effect of Proper Winter Maintenance on Roadways
- Analyzed Traffic, Crash and Winter Maintenance Data From 1989 - 1994 in NY, IL, MN, WI, IA and PA

The Marquette University Report

- **Results of Deicing:**
 - **Reduction of accidents: 88.3% of injury accidents in first 4 hours**
 - **Quick payback: freeways within 35 minutes, 2-lane roads within 25 minutes**
 - **Tremendous cost benefit: \$6.50 for every \$1 spent**

The Marquette University Report

- **The Rate of Injury Accidents is Nine Times Higher Before Deicing Than After Deicing.**
- **After Deicing, the Average Cost Per Accident Decreased by 10%**

Stafford Township Snow fighting Program

- Proactive!
- Prepared!



Nobody Needs This!



Comprehensive Winter Operations Plan

- Level of Service
- Areas of Responsibility
- Winter Organization Chart
- Public Policies
- Storm Warning System
- Snow Map
- Personnel Policies
- Material Policies
- Equipment Policies
- Operations Policies
- Intergovernmental Agreements
- Public / Media Relations



“Sensible Salting” Practices

- **Provides for “Professional Snow fighting”**
- **Protects the Environment**
- **Increases Safety at Reduced Costs**
- **Reduces Liability**

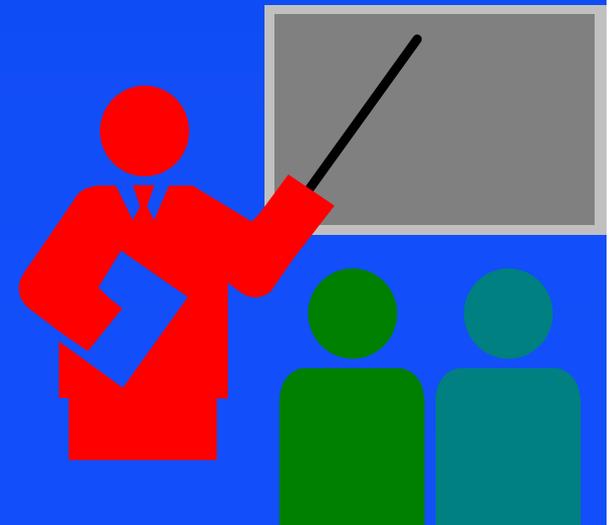
“Sensible Salting”

- **Materials Specifications**
- **Storage Facilities**
- **Material Handling**
- **Material Spreading**
 - **Equipment calibration**
 - **Application rates**
- **Deicing / Prewetting / Anti-Icing**

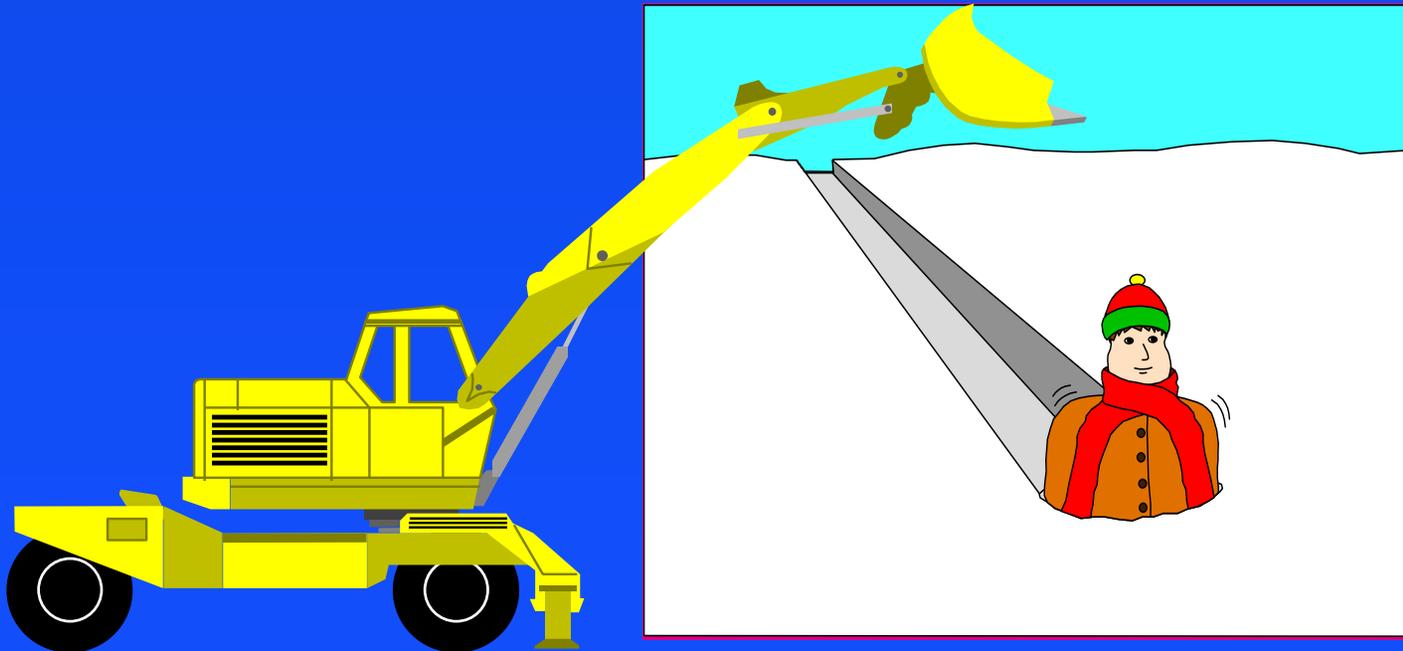


Employee Training Program

- Training Means “Professional Snowfighters”
- Training is Maintaining Personnel at an Optimum Level
- Training is a Investment in Your Organization’s Future



Winter Operations: A Year-Round Activity



Winter is Never Over!

- **Spring**
 - **Review & evaluate**
 - **Organize data**
 - **Conduct cleanup**
 - **Conduct road field inspection**
 - **Develop a 'Plan of Action'**

Winter is Never Over!

● Summer

- Implement action plan
- Review existing & potential snow agreements
- Train & retrain operators
- Prepare specs and bid for materials and equipment

Winter is Never Over!

- **Fall = Preparation Time**
 - **Order materials**
 - **Finalize agreements**
 - **Finalize snow map and routes**
 - **Inspect & calibrate equipment**
 - **Conduct winter training**

Winter is Never Over!

- **Winter**
 - **Perform professionally**
 - **Manage professionally**

Snowfighters need Support

- Snow fighting is more than just sending out plow trucks
- An effective program requires....
 - Planning
 - Assigning responsibility
 - Delegating authority
 - and Leadership

Snowfighters Need Support

- **Policy Alone Doesn't Make Safe Roads**
 - **Need policy-making leadership**
 - **Requires effective management**
 - **Adequate budget**
 - **Proper equipment**
 - **TRAINED and committed personnel**
- **In other words.....**

**IT TAKES
THE
WHOLE TEAM !**

Stafford Township

Snow Removal Plan

Stafford Township Roads

- **Stafford Township has 187 miles of local jurisdiction roads**
- **675 lane miles to be plowed.**

Stafford Township Roads

- **483 Streets to be cleared**
- **194 Cul-De-Sacs to be cleared**
- **17 Municipal parking lots**

Streets maintained by other agencies

33

Ocean County Roads:

- Nautilus Drive
- Lighthouse Drive
- Stafford Avenue
- Hilliard Blvd.
- Cedar Bridge Road
- Bay Avenue
- Cedar Run Dock Road
- Mayetta Landing Road
- Jennings Road (Bay Ave. – Rte. 72)
- Mill Creek Road (Bay Ave. – Rte. 72)
- Route 539
- Route 532 Spur
- Beaver Dam Road

State Highways:

Route 9
Route 72
Marsha Dr. (Bay Ave. – Rte. 72)
Garden State Parkway

Out of service areas

- The following areas are not to be plowed
 - Manahawkin Trailer Park
 - Pinecrest Trailer Park
 - Oaktree Trailer Park
 - Perry's Lake
 - Regional Schools
 - Local Schools (out of service for plowing operations only)

Stafford Township Snow Removal Plan

- **The Stafford Township Snow Removal Plan was originally adopted by Mayor and Council in April, 1994. A revised edition was adopted September 2007.**
- **Plan establishes general guidelines for snow and ice removal operations.**

Stafford Township Snow Removal Personnel

- **The Department of Public Works and the Water and Sewer Department combine forces for snow removal operations.**
- **Employees from other departments may be called depending on the storm severity.**

Stafford Township Snow Removal Personnel

- Personnel may be placed on Stand-by or issued a to report for duty.
- Public Works utilizes the reverse 911 system to notify employees after normal work hours

Stafford Township Snow Removal Equipment

- **Equipment available for snow removal:**
 - **45 snowplows, 10 have salt spreaders**
 - **2 reserve plows**
 - **7 front end loaders**
 - **1 motor grader**
 - **3 snow blowers (sidewalk operations)**
 - **2 Toro Workman with rotary brooms**

Weather Forecast Information

- **Stafford Township has a contract with “Weather Works”**
- **Weather Works provides forecast information via fax, email, and phone depending on the hour of the day.**
- **DPW Supervisors can speak directly with a Meteorologist 24 hours a day**



Saturday December 25, 2010 | 8:33 AM

STAFFORD DPW

STORM ALERT

COASTAL STORM TO BRING A SIGNIFICANT SNOW TOMORROW... OUR COASTAL STORM CONTINUES TO RAPIDLY DEVELOP / STRENGTHEN ACROSS THE SOUTH AND HAS BEEN TAKING A PROJECTED TRACK CLOSER TO THE COAST OVER THE LAST 24 HOURS. THIS MEANS WE HAVE AN INCREASING THREAT OF A MAJOR TO SIGNIFICANT SNOWSTORM FROM EARLY TOMORROW INTO EARLY MONDAY. LIGHT SNOW MAY ARRIVE AS EARLY AS 4-7 AM TOMORROW AND PICK UP IN INTENSITY THROUGH THE DAY. THE STEADIER SNOW WILL ARRIVE BY LATE MORNING / EARLY AFTERNOON BEFORE WINDING DOWN OVERNIGHT INTO MONDAY. AN INCREASINGLY STRONG NORTHERLY WIND WILL ACCOMPANY THE SNOW AND COMPLICATE THE SNOW CLEARING EFFORTS WELL INTO MONDAY. RIGHT NOW, WE ARE THINKING 8-14 INCHES ON AVERAGE BUT THE POTENTIAL FOR MORE CERTAINLY EXISTS WITH FURTHER INTENSIFICATION.

ALERT OVERVIEW					
START TIME:	Sun 4-7 am	END TIME:	Monday AM	TOTAL:	8-14 inches but potentially more
DURATION OF PRECIP:	Around 24 hrs	INTENSITY:	Becoming steady and heavy		
COMMENTS:	This is a very powerful storm with potential for significant snow accumulations and strong gusty winds resulting in downed trees / power lines.				

PERIOD	FORECAST	HIGH/LOW
TODAY	Mostly cloudy and chilly with a passing flurry	Mid 30s
TONIGHT	Cloudy and cold... some flurries and light snow developing towards morning.	Mid 20s
SUNDAY	Cloudy and becoming windy with flurries or light snow developing 4-7 am, becoming steady and occasionally heavy through the day.	Near 32 but falling with snow
SUN NIGHT	Steady and heavy snow, significant blowing and drifting with gusty northerly winds.	20-25
MONDAY	Snow winding down in the morning but windy with continued blowing and drifting. Some clearing late but very cold	27-32

POTENTIAL HAZARDS:

Rapid snow accum (1"+ per hr)	<input checked="" type="checkbox"/>	Night/AM widespread refreeze	<input type="checkbox"/>
Significant blowing / drifting	<input checked="" type="checkbox"/>	Night/AM patchy refreeze	<input type="checkbox"/>
Very low visibility at times	<input type="checkbox"/>	Heavy accum. during rush hour	<input type="checkbox"/>

SNOW CONFIDENCE:

2-4 Inches	15%
4-8 Inches	25%

Pre-Storm Planning Meeting

- Prior to each forecast winter storm, a planning meeting is held at the DPW.
- Participants include, DPW, Water & Sewer, Police, and Emergency Management.
- Forecasts, staffing levels, duration of storm, potential weather problems, accumulation effect on schools, supply inventories, and other issues are discussed.

Emergencies During a Snowstorm

- **Emergency calls such as a fire or medical emergency are transmitted to the DPW by radio from police dispatch.**
- **The route supervisor for that area will send the closest plow to assure adequate access to the scene for emergency personnel.**
- **During the December 2010 storm, plow crews responded to 7 EMS calls and 1 Fire call.**

Dialysis Patients

- **Stafford Township in conjunction with Southern Ocean County Dialysis Clinic, maintains a list of all Stafford Twp. Dialysis Patients and their dialysis schedule.**
- **There are 20 Dialysis Patients listed in Stafford.**
- **Route supervisors make certain that they can get out for their treatments.**

Stafford Township Snow Removal Plan

- Stafford Township has added “Anti-Icing” to its snow removal

Stafford Township Snow Removal Plan

- Anti-Icing is the application of up to 60 gallons per lane mile of “Salt Brine” to dry pavement surfaces, 24 – 48 hours prior to the arrival of a snow event. The Salt Brine dries on the surface and is re-activated by the moisture of the snow. It prevents the snow and ice from “bonding” to the surface.

Stafford Township Snow Removal Plan

- Salt Brine is made from mixing water with de-icing rock salt to a salinity of 23.3%.
- With the new system, we can make Salt Brine for 7 – 9 cents per gallon compared to purchasing Liquid Calcium at 94 cents a gallon

Stafford Township Snow Removal Plan

- **Salting operations commence when there is a coating on the road surfaces.**
- **The township is divided into ten salting routes.**

Stafford Township Snow Removal Plan

- **The township utilizes rock salt pre-wet with salt brine for its de-icing operations.**
- **An average snow storm requires about 200 tons of rock salt and 2500 gallons of salt brine at a cost of \$14,500.00.**

Salt Spreader w/plow



Stafford Township Snow Removal Plan – De-Icing

- **It takes about 4 hours to salt every street in the township once.**
- **If the storm required plowing, conditions may require another 4 hours of salting when plowing is completed**

Stafford Township Snow Removal Plan - Plowing

- **Plowing operations begin when the snow is deep enough to plow, generally 1.5” of accumulation or earlier based on weather conditions.**
- **The township is divided into 35 snow removal routes.**

Stafford Township Snow Removal Plan - Plowing

- **It takes about eight hours of plowing to plow the entire township once.**
- **Depending on storm conditions, we may have to plow streets multiple times.**

Snow Routes

- 10 Salting Routes
- 40 Snow Plowing Routes
- Routes are divided into districts

Chapter 201-37 Stafford Twp. Code

- **Parking of any vehicle on any portion of a Township road, street or highway improved, designated or ordinarily used for vehicular traffic is prohibited whenever snow has fallen and results in an accumulation sufficient to require plowing of Township roads, streets or highways by the Stafford Township Department of Public Works.**
- **Said parking prohibition shall remain in effect until the snow has ceased, the streets, roads or highways have been plowed sufficiently and a determination has been made by the Mayor, or his designee, that parking will not interfere with the normal flow of traffic.**
- **For any storm with a forecast of 4” or more of snow accumulation, The Stafford township Emergency Notification will be used to send residents a reminder by phone.**

Factors That Affect The Snow Removal Operation

- **Traffic Congestion**
 - The “Bread and Milk” Alert
 - Inexperienced drivers
 - Untreated road surfaces
 - Unsafe driving conditions

- **Reduced Visibility**

Reduced visibility for plow operators
Can you tell where this street is?



Photo taken Feb 4, 2010 @ 2:35 AM

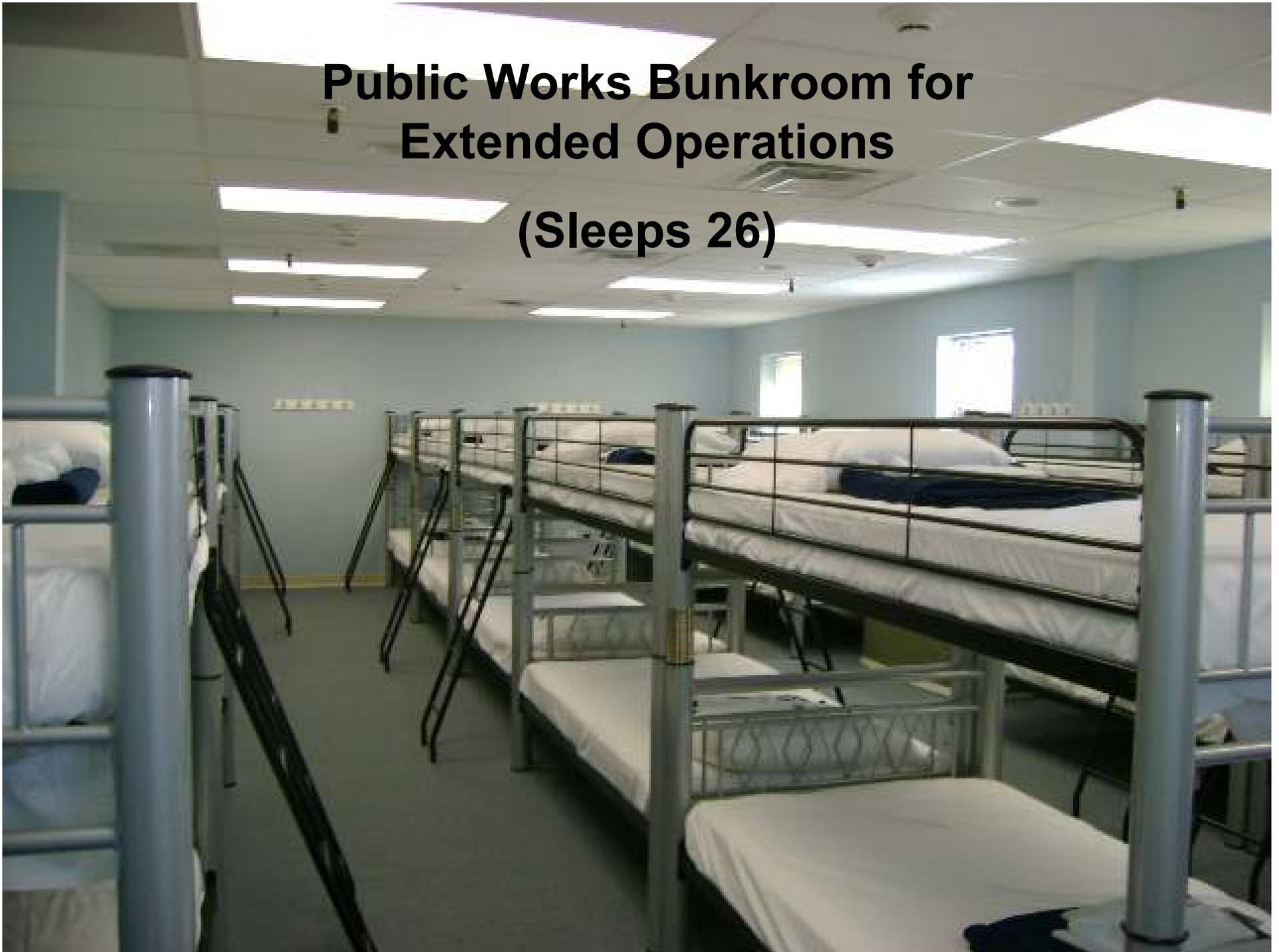
Factors That Affect The Snow Removal Operation

- **Driver Fatigue**

- “Maggie's Law” P.L. 2003, CHAPTER 143,
 - Establishes driving while fatigued as recklessness under vehicular homicide statute
 - May not drive after being awake in excess of 24 hours.
 - No exemptions for Snow Removal

Public Works Bunkroom for Extended Operations

(Sleeps 26)



Driveways

Residents have asked at Township Meetings about having the town clear the end of their driveways. There are more than 13,200 driveways in the Township.

Allowing five minutes to clear the driveway and to travel to the next driveway, it would take 1100 hours. With all forty five plows clearing driveways, It would add an additional 26.5 hours to the hours already spend clearing the streets.

Driveways

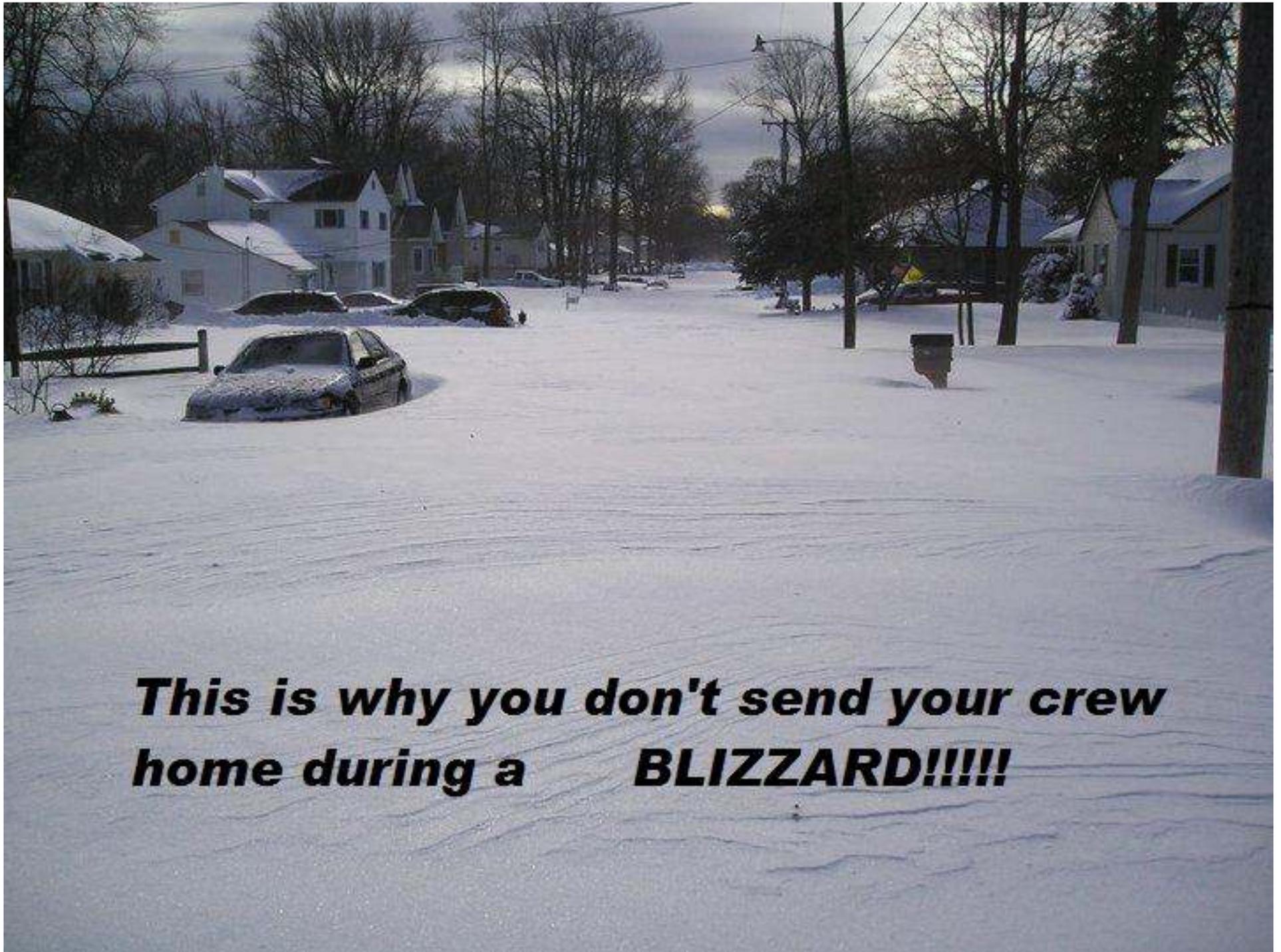
When you include the hourly rates for forty five men and the hourly rate for the 45 plows, The cost would be over

\$100,000.00

Not including the costs for any damages done to private property

What Not to Do

- **Some municipalities sent their DPW crews home during the December 2010 Blizzard.**
- **This decision is never good for Snow-Fighting Operations**



***This is why you don't send your crew
home during a BLIZZARD!!!!***

December 26, 2011

Resident Comments

- **Fantastic job on Lyle Avenue- and thank you for all your hard work.**
- **A resident called and requested that I praise the DPW for a fantastic job during the recent snowstorm – Navy Lane**

December 26, 2011

Resident Comments

- We would like to thank you very much for the snow removal in front of our home. It was very easy to navigate in & out of the driveway.. Dorothy Drive.
- I know your are busy with road cleanup, which you have done a great job....when will you be picking up trash Zone 1 Thank You

December 26, 2011

Resident Comments

- A lot of times local Townships only hear bad comments from town residents, I on the other hand would like to commend the out standing job that Stafford Township performed plowing the snow from our recent snow storm. Within hours of the storm finishing dumping snow I think every road in town was plowed and passable. The nightmares we are hearing from other towns are unbelievable. They should contact Stafford Township to mirror your process.
- I as a resident of Stafford Township for only 5+ years want to say thank you for your hard work and long hours. Each individual should be praised for their performance