

CITY OF CENTRAL FALLS POLICY ON PLOWING / SANDING

SNOW REMOVAL EQUIPMENT:

LARGE PLOWS

- A. Truck #52*
- B. Truck #53*
- C. Truck #84*
- D. Truck #88*
- E. Truck #97*
- F. Truck #99*
- G. Truck #100*
- H. Truck #113*

SMALL PLOWS

- I. Truck #103*
- J. Truck #108*
- K. Truck #117*

SANDING TRUCKS

- L. Truck #52*
- M. Truck #53*
- N. Truck #100*
- P. Truck #113 (Small Sander)*

HEAVY EQUIPMENT

- R. Backhoe #101*
- S. Backhoe #114*

POLICY ON SANDING / PLOWING / AND SNOW REMOVAL:

INTRODUCTION:

In the event of an Ice or Snow Storm the Central Falls Public Works Department become First Responders. It is their obligation and responsibility to apply winter road treatments to inhibit hazardous road conditions that would otherwise cause vehicles to skid, slide and veer out of control. Their initial focus is to clear the roadways for the emergency vehicles such as Police Dept., Fire Dept., Rescue Crews, etc. This would entail a concentration on clearing the main arteries and escape routes first and then plow the secondary roads and side streets thereafter. It is the charter and prime goal of the Central Falls DPW to maintain a Very Safe and Healthy Environment for the residents of the city.

PREPERATION FOR SNOW SEASON:

Well before the snow season arrives there is a great deal of groundwork that has to be completed. In fact, preparation for plowing and sanding takes place in the summer months. Vehicles and equipment have to be repaired and made road worthy, winter road treatment materials have to be ordered etc. The following is a calendar schedule that the Central Falls DPW follows to prepare for winter snow removal:

<u>JULY / AUGUST</u>	<u>SEPTEMBER / OCTOBER</u>	<u>NOVEMBER / DECEMBER</u>
<u>Repair & Service</u>	<u>Order & Stockpile Materials</u>	<u>Review Winter Checklist</u>
<i>- Plows - Plow Trucks - Sanders - Sanding Trucks - Backhoes - Bobcat - Snow Blowers</i>	<i>- Sodium Chloride (Salt) - Sand - Liquid Calcium Chloride - Magnesium Chloride - Snow fences - Snow poles (plow markers) - Calibrate Sanders</i>	<i>- Check operation of plows - Test Drive Plow Trucks - Cover all salt piles - Install (Snow fences) - Install poles (Hydrants etc.) - storm drains clean / operable - Mix sand w/ salt (3:1 Ratio)</i>

SAND/SALT BARREL LOCATIONS IN THE CITY:

In early November a detail is sent out to place 55 gallon drums filled with sand and salt mix. They are placed at hill locations and in some cases intersections that have been identified as potentially slippery areas for vehicles in snow storms. The locations of the Barrels are as follows:

- *1485 HIGH STREET (Two Barrels at Blackstone Falls Facility)*
- *668 BROAD STREET (Next to wall in front of Notre Dame Church)*
- *361 COWDEN STREET (Community Center Parking lot)*
- *397 HIGH STREET (Front of St. Josephs Church)*
- *150/160 ILLINOIS STREET (Police Department)*
- *HENDRICKS STREET (On the Hill off Lonsdale Avenue)*
- *PACIFIC STREET (On the Hill next to Old Channel One)*
- *CLAY STREET (On the Hill next to High Street)*
- *BLACKSTONE STREET (In front of the Electrical Sub-Station)*

ROAD CONDITIONS:

Before any road surface treatments are applied it is extremely important to have knowledge and understanding of the outside elements and road conditions. To be specific the following are factors that should be considered before execution of applying winter road treatments:

- ✓ *Weather forecast on the intensity of the snow storm*
- ✓ *Know the outside Air temperature*
- ✓ *Knowledge of the temperature of the surface of the road*
- ✓ *Will the storm be localized to one section or cover entire city*
- ✓ *Knowledge of type of snowfall (Wet heavy snow) or (Light fluffy snowflakes)*
- ✓ *Know the velocity of the wind (if high) prepare for snow drifting*
- ✓ *If rain is forecasted after snow storm prepare to prevent street flooding*

DECISIONS ON ROAD SURFACE TREATMENT:

Using the data collected from the checklist in “ROAD CONDITIONS” above decisions should be made on what type of chemicals or sanding solution should be applied to the surface of the road that will be most effective to inhibit hazard conditions. In the decision making process the following are some of the factors that should be taken into consideration:

- *Look at the road surface temperature, for instance in early Spring or late Fall it is conceivable that the temperature of the road surface is above 32°F (significantly) although the air temperature is well below freezing which will support snow fall . In this scenario the decision may be made “not” to apply any road surface conditioning at all as the snow will melt upon contact with the asphalt.*

☞ *If in-fact the road surface temperature is below 32°F (Freezing point of [H₂O] water) then the actual surface temperature of the road should be documented to determine which chemical will be applied. The following table identifies the material vs. the road surface temperature:*

↪ *Calcium Chloride == ➔ *Effective -67°F and higher*

↪ *Magnesium Chloride == ➔ *Effective -28°F and higher*

↪ *Sodium Chloride (Salt) == ➔ *Effective -6°F and higher*

↪ *Potassium Chloride == ➔ *Effective +13°F and higher*

↪ *Calcium Magnesium Acetate (CMA) == ➔ *Effective +15°F and higher*

**Note: “Effective melting temperature” values represent the lowest possible effective melting temperature with highly concentrated solutions of the chemicals listed*

- ☞ *It is recommended that before the first snow flake has fallen the roads be treated with an “Anti-Icing” agent (typically the type of chlorides shown in the table above). This anti-icing process consists of trucks going out and spraying a liquid solution of “Calcium Chloride” on the surface of the roads. The calcium chloride will lower the freezing temperature of water, there for causing the snow to melt when falling on the surface of the road*
- ☞ *A similar process can be performed after the storm when the snow has accumulated on the surface of the pavement. However, it takes on a different name being called “De-Icing”. This is a procedure where the chloride family mentioned in the table above is applied on top of the compacted snow. The end result is the same where the Chlorides will react the same as anti-freeze, where it lowers the freezing temperature of H₂O (water) thereby melting the layer of snow and ice on the surface of the road . This melting process formulates a “brine” where the remaining snow and ice will then float on the brine breaking the bond with the road surface.*
- ☞ *In extremely cold temperature conditions where the chloride chemical family becomes ineffective it is recommended that “Sand” be dispensed on the surface of the compacted snow and ice. This process will create traction for the wheels of the vehicles.*
- ☞ *With all of the road surface treatments mentioned above the vehicle driver applying the materials must be aware of all the “Environmental Issues”. Some of the Chlorides mentioned have greater potential for environmental damage than other. Hence, the driver should have knowledge of these hazards and conform to the rules. They should comply to road warnings for “Reduced Salt Areas” and “Salt*

Remediation Areas” to protect the environment. Drivers should also be aware of the “MSDS” Sheets knowing what PPE (Personal Protective Equipment)to wear and what the consequences will be if they do not comply.

PLOWING AND SANDING THE CITY OF CENTRAL FALLS:

SANDING TECHNIQUES AND PROCEDURES:

- *Spreader Calibration is a very important component when sanding the roads. All materials do not spread the same due to their weight and size hence, for each material being applied there should be a separate spreader calibration conducted. This will keep a tight control over application rates, as it is not desirable to waste costly road treatment materials. Spreader calibration should be done frequently as the mechanics of the spreader operate under extreme environmental conditions: such as --- very cold temperatures, high moisture, and in the presence of caustic and corrosive chemicals. These extreme conditions can cause damage to the mechanism of the spreader.*
- *Spreading De-icers: in order to achieve maximum efficiency when spreading salt, it is recommended that it be dispensed in the center of the road, having a crown the melted ice and snow will gravitate to the sides of the road treating the entire surface. The same principle holds true for a curve in the road, the salt should be applied to the high side of the curve taking advantage of the gravity principle.*
- *Spreading Rates: when applying salt to the surface of the road it is most effective to spread between 100 to 300 pounds per single lane mile. Applying under the 100 lb tolerance will not be effective and spreading over the 300 lb limit would only waste costly material.*
- *Effective Temperature: consideration to temperature should be taken when applying salt. The effective lower temperature limit for salt is between 15°F and 20° F. If the temperature drops below the 15°F lower limit it will be more desirable to apply either Calcium Chloride or Magnesium Chloride as they have lower effective temperatures than Sodium Chloride (Salt).*

SNOW STORM FORECASTING AND PREPARING:

In the event of a snow storm that is perceived to hit the City of Central Falls it is imperative that a litany of procedures and events be followed. In preparation of the storm the following sequence of events would transpire:

- *Employ all of the “RWIS” (Road Weather Information System) options that are available. This would entail listening to meteorologist forecasts and gathering information from the Federal, State, RIEMA, and Local weather stations. Obtain as much information about the intensity of the storm as possible, to be specific: direction it will enter the city, time of arrival, estimated amount of snow or ice accumulation, wind velocity, air temperature and road surface temperature, estimated duration of the storm, know if precipitation (rain) will follow the snow, etc. Collect as much information about the storm in advance as possible. This information will be vital to the decision making process to plan for resources and equipment to deploy.*

- **CALLING IN EMPLOYEES:**

If the snow storm arrives after working hours it is the obligation of either the work force Supervisor or the Director of Public Works to call back employees to operate the equipment to combat the storm. This call back process is done in compliance with the union overtime rules. Hence, the next employee in line for overtime is called first and so forth down the list until all of the resources needed for this particular storm is contacted.

- **DOLING OUT THE ASSIGNMENTS:**

When the employees arrive at the DPW garage either the Supervisor or the Director of Public Works will assign the specific jobs and details to the workers. This would entail identifying who will load the trucks with the sand and salt mix, assign drivers for pre-road conditioning, plowing and sanding. Workers would also be assigned snow removal operations for the walkways, driveways, and parking lots of the various municipality buildings throughout the city.

- **LOGISTICS IN PLOWING THE CITY OF CENTRAL FALLS:**

The Department of Public Works in the City of Central Falls are first Responders with regard to snow storms and ice storms (the roads must be cleared for the emergency vehicles such as Police, Fire, and Rescue.). Therefore it is imperative that the procedure and plan for plowing and sanding in the city is geared to clear the roads and highways that will first accommodate the emergency vehicles. Hence, the following Routes will be plowed and sanded in the sequence shown:

- *Starting a 1280 High St. (DPW Garage) from the parking lot take a Left onto High St.*
- *Take first Left onto Hunt St continue until Illinois St.*
- *Take Left onto Illinois St. (Police and Fire Stations are on this street) continue to Central St.*
- *Take a Left onto Central St. continue to Broad St.*
- *Turn Left onto Broad St. continue to Hunt St.*
- *Take a Left onto Hunt St. continue to Dexter St.*
- *Turn Left onto Dexter St. continue to Central St.*
- *Take a Left onto Central St. continue to Broad St.*

✓ *This first phase will open up the main arteries for the emergency vehicles*

- *Next take a Right onto Broad St. continue to Clay St.*
- *Turn Left onto Clay St. continue to Roosevelt Ave.*
- *Take a Left onto Roosevelt Ave continue to Charles St.*
- *Turn Left onto Charles St. continue to High St.*
- *Take a Right onto High St. continue to Broad St.*
- *Turn Right onto Broad St. continue to Medeira Ave.*
- *Take a Left onto Mateira Ave. continue to Hunt St.*
- *Turn Right onto Hunt St. continue to Dexter St.*
- *Take a Right onto Dexter St. continue to Lincoln Town Line*
- *Turn 180 Degrees on Lonsdale Ave. continue to Pawtucket Line*
- *At Ayr St. turn 180 Degrees on Lonsdale Ave continue to Rand St.*
- *Turn Right onto Rand St. continue to Dexter St.*
- *Take a Right onto Dexter St. continue to Central St.*
- *Turn Left onto Central St. continue to Washington St.*
- *Take a Left onto Washington St. continue to Hunt St.*
- *Turn Left onto Hunt St. continue to Perry St.*
- *Take a Left onto Perry St. continue to Summer St.*

✓ *This second phase has cleared the main highways that run both East/West and North/South in the City along with some Escape Routes . At this point plowing and sanding crews can be dispatched to clear the secondary roads and side streets. This is organized by having one crew working on the West Side of the City and a second crew working the East Side of the City (calling Washington Street the dividing line).*

● **FINAL OPERATIONS AT COMPLETION OF STORM**

- *It is common practice in the DPW that after all of the Highways, Roads, and Streets have been plowed (cleared and made passable)*

we send out what we call, “The Mop Up Crew”. This is a task force of plows and sanders that go out and open up the roads and highways by attempting to plow curb to curb. Hence, in the event of another storm we will have a place to push the new snow.

- *With regard to the sanding operation, the drivers will respond to any police calls reporting locations on the roads that are slippery. They also apply a second application of sand/ salt mixture on any of the hills and large intersections in the city to create better wheel traction for the vehicles that are traveling.*
- *Finally, the aftermath of a snow storm leaves an accumulation of snow in the parking lots of the schools, public safety building, municipality buildings, etc. which all has to be removed before the next business day. This is when the crews of backhoes , dump trucks, and snow blowers are dispatched to remove and clear out the snow from these areas. In many cases where the real estate is tight and not conducive to storing large piles of snow we will than displace the snow by loading it into dump trucks with the backhoes. It is then transported to an environmentally safe area to be stored for melting.*
- *Upon the conclusion of the plowing, sanding, and snow removal operations all of the trucks and equipment are washed down and cleaned to prepare for the next storm!!!*

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