- A limited number of beats in congested areas **may** require two people be assigned to the truck.

- If the personal safety of the operator is jeopardized by any condition or conditions not addressed above, then two people **may** be assigned to the truck.

- Where traffic volume is or is expected to be extremely high (level of service D, E, or F) during the operation, two people **may** be assigned to the large dump truck if the right wing is attached. In most locations, this should be for short duration during the morning and evening peak of commuter traffic or on a major holiday.

III. GUIDELINES FOR THE APPLICATION OF SNOW AND ICE CONTROL MATERIALS

GENERAL

Choice of material will depend on (in priority order):

- Pavement temperature
- Time of day
- Traffic volume
- Nature of the particular snow and ice event
- Air temperature and wind velocity
- Availability of materials

SALT (SODIUM CHLORIDE)

If the combination of conditions for salt to work properly is favorable, pure or treated salt should be the material of choice.

The Departments approach to ice control is proactive. Anti-icing is the preferred tactic to take, when appropriate. In Appendix A are general guidelines for anti – icing operation. The recommendations are in tabular form.

The use of these tables depends on knowledge of pavement temperatures and the ice bond characteristics prior to treatment. Application rates are shown for operations using untreated salt, treated salt and straight liquids. These application rates are based on several years of experience in both New York and other States and are meant to be a guide. Experience of individual highways or network of highways will determine exact rates. The Resident

Engineer or Shift Supervisor will advise the operator on the appropriate application rate for a given storm.

SALT SPREADING PATTERNS

- TWO LANE - TWO WAY TRAFFIC

  Normally, salt should be applied to the middle third of the pavement. In simultaneous plowing/spreading operations, the spread pattern should be within the plowed area. In situations where salt does not appear to be working properly, the spread pattern may be further narrowed around the center line of the road.

- MULTI-LANE - ONE WAY TRAFFIC

  Normally salt is applied to nearly the full pavement width. Care must be exercised to be sure the material does not "bounce and scatter" outside the intended spread area. If salt does not appear to be working properly, spread patterns may be narrowed to the high side wheel path in each lane.

SPREADING SPEED

Increasing spreading speed increases the "bounce and scatter" of salt. Actual spread pattern should be observed from a trailing vehicle periodically to be sure the salt is being spread as intended. Depending on road surface conditions, highway geometry, traffic and local policy, spreading speeds should be in the range of about 15 to a maximum 35 MPH.

ABRASIVES (SAND)

Abrasives should generally be used where low traffic volume and/or low pavement temperature will not allow salt to work properly. Abrasives **should** be applied at a rate of from 600 pounds per mile, per lane, to 900 pounds per mile, per lane. Rates at or near the high end of the range may be used on hills, curves and intersections. Rates at or near the low end of the range may be used on straight sections. Abrasives **shall** be spread within the limits of the pavement as near to full pavement width as possible. Depending on road surface conditions, highway geometry, traffic and local policy, spreading speeds **should** be in the range of about 15 to a maximum 35 MPH.

SPINNER SPEED

If the deflectors (skirts) on the bottom of the spinner/chute assembly are not deflecting material, spinner speed is the major influence on the spread pattern. If the deflectors are deflecting material, spinner speed has little influence on the spread pattern. The speed of the spinner is usually set at a higher rate than is necessary and actually throws the material too far.

SPREADING WHEN THE SPREADER CONTROL SYSTEM (DICKEY JOHN) IS NOT WORKING

Reasonably accurate spreading of salt and abrasives can be accomplished even though the spreader control system is not functioning. For all controllers other than the Dickey John ICS 2000 and a handful of Comp-U-Spread controllers, the "back up" calibration procedure and operating instructions can be found in "Instructional Material For Snow and Ice Materials Spreaders 11/25/91" that should be available at all work locations and through the Equipment Operator Instructors. The procedure for the Dickey John ICS 2000 is the same except that the canister housing must be removed to access the valves. This is best done by the mechanic or calibration team. The key to accurate spreading while in the "manual" or "back up" mode is driving at the speed designated in the back up calibration.

Remember, if any automatic spreader control system fails, the truck can still be used for plowing and materials application by using the manual mode. Also Operators will need to manually keep track of usage and report that usage to their supervisor.

IV. PLOWING SNOW

There are a variety of acceptable techniques for removing snow from highways that will allow reasonably safe traffic flow during and after the operations. These are determined by local traffic conditions, characteristics of the highway surface and available snow storage area. It is desirable to avoid leaving windrows or berms of plowed snow between travel lanes carrying traffic in the same direction. However, if sufficient equipment is not available, windrows **may** be left for short periods of time. As part of the Department's effort to improve snow removal techniques a presentation on "Plowing Procedures" is available operators to view. This can be arranged thru the Supervising Equipment Operator Instructor.

- TWO LANE - TWO WAY TRAFFIC

  Plowing **shall** always be done in the direction of traffic. Some small encroachment over the center line may be necessary to completely clear the pavement. However, plow trucks **must** yield the right-of-way to oncoming traffic.

- MULTI-LANE - ONE WAY TRAFFIC

  There are a variety of acceptable procedures for plowing multi-lane one way highways. These depend on the location of snow storage areas, highway geometry and traffic. Plowing **shall** always be done in the direction of traffic flow. Generally, snow should **not** be plowed to the side of the truck where traffic has an opportunity to pass unless it is part of a close echelon plowing operation that prevents passing opportunities and quickly removes plowed snow from the pavement surface. If sufficient equipment is not available, windrows **may** be left for short periods of time.