a) During a situation like this, conditions are monitored for potential change

ii. There are also times that windy, cold conditions may warrant a non-treatment option

iii. Throughout the duration of any winter event, weather and road conditions are monitored for changes and treatment selections are monitored for effectiveness

a) At any given time, modifications to the treatment plan may be necessary to address conditions as they occur

b. Anti-icing

i. The proactive approach of applying snow and ice control materials to a roadway prior to the onset of frozen precipitation

ii. The goal of anti-icing is to prevent the formation of a strong bond between frozen precipitation and the pavement surface

a) There are times when the precipitation is light enough and pavement temperatures are not too cold, that anti-icing applications will be sufficient to prevent snow and/or ice from bonding and accumulating on the roadway

iii. Anti-icing typically consists of applying liquid chemicals to the pavement surface with a direct liquid applicator type of unit

a) However, anti-icing can also be accomplished by the placement of pre-wetted salt in a light application

c. De-icing

i. The reactive approach (after the start of the storm) of applying snow and ice control materials to accumulated frozen precipitation on roadways

ii. The goal of de-icing is to break down the bond which has formed between frozen precipitation and the pavement surface

iii. After the onset of the storm event, de-icing applies to any combination of plowing, salting and/or sanding

a) Traditional or conventional methods of snow and ice removal are basically de-icing practices – roads are plowed and/or chemicals are placed after the onset of the storm event

iv. Additionally, there are winter events that occur when the pavement temperatures are so cold that anti-icing chemicals are

not effective. Under these circumstances, de-icing techniques are employed

d. Combination anti-icing and de-icing

i. Typically, treatment scenarios will include a combination of anti-icing and de-icing techniques

a) As conditions change and develop within a winter event it is not uncommon to begin with anti-icing and move into de-icing as storm conditions evolve

ii. At the end of a storm and during clean-up activities, anti-icing techniques may be applied again

a) In this situation, anti-icing will help minimize bonding and allow additional response time but plowing, abrasives and/or salting may still be needed

b) Once the storm has concluded, follow-up liquid applications can expedite clean-up

D. Units of Measurement

1. Units of measurements are used to determine how and when materials are applied and the effectiveness and efficiency of the snow and ice control

2. Types:

a. Weight

i. How we measure rock salt and abrasives. In the U.S., weight is most commonly measured in pounds (lbs) and tons.

b. Distance

i. The space between two points

a) In English, distance is measured in inches (in), feet (ft), and miles (mi)

b) Winter operations distance is most commonly expressed in lane-miles.

1) Since a road or highway is bi-directional, the total lane-miles would be the distance of the highway multiplied by the number of lanes on that highway