



# **Snow & Ice, Impacts on the Black river**

# **The Competing interests of Snow Removal**

- › **Economic**
- › **Safety**
- › **Environment**





# Current Challenges

- › **Currently no data is being kept or compiled**
- › **At minimum**
  - **number of trips and**
  - **application rate or quantity used**
- › **Trips x mileage= lane miles/tons = application rate**
- › **Trips x mileage=lane miles x application rate = tons**
- ›  **$\frac{200 \text{ (trips)} \times 136 \text{ (Lane mile)}}{10,880,000\text{lbs}} = 27,200 \text{ (lane miles plowed)} \times \frac{400\text{lbs}}{2,000} = 5,440 \text{ tons per year}$**



# **Current Challenges**

- › **Most equipment is old**
- › **Very few municipalities use application controllers**
- › **Most municipalities are tech resistant**
- › **Lack of funding**
- › **Most do what they have always done, and it varies greatly by municipality**

# Current theory and practice

- **Mechanically remove snow**
  - › **When and how often** (whenever it is sticking to road 4am to 8pm)
  - › **Cycle times** (3.5 hours)
  - › **Efficiencies of the plow**
- **Remaining snow**
  - › **Abrasives for traction**
  - › **Quality and Quantity of Sand and when**
  - › **Chemically remove snow**
    - **Salt**
    - **Brine**
    - **Mag chloride**
    - **Calcium chloride**
    - **Ag Products**
  - › **Right product and minimum application**

Each year, the **state** generates some 17 billion pounds of **salt** worth about \$600 million. The **salt is used** for all kinds of things, not just **roads**. The proximity of large **salt** supplies to **New York highways** may **have** made it easier for **salt** to become the **road** chemical of choice two centuries later. Dec 21, 2020

<https://www.adirondackexplorer.org> › stories › curbing... ▼

# Adirondack Daily Enterprise

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## **Sanding roads may cost more than salting**

Last week's article discussed some of the things to consider when deciding whether to sand roads for snow and ice control or abrasives, such as sand. Most people would guess sanding roads with abrasives is far cheaper than using salt. Maybe not!

# Toolbox

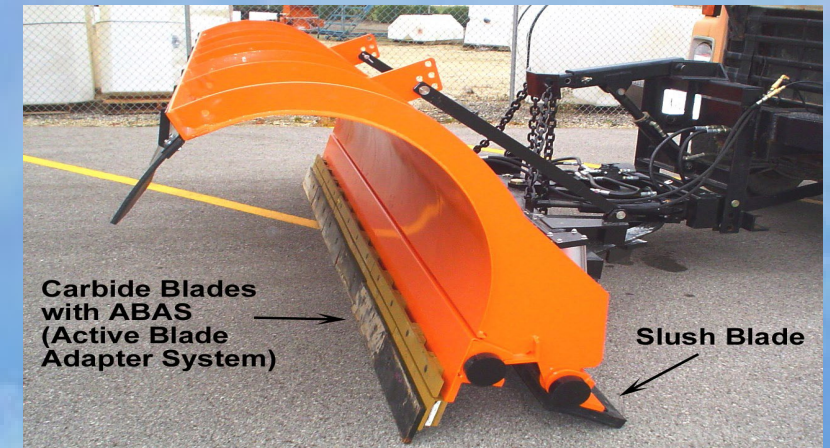
## › Equipment

- Center discharge
- Adjustable discharge
- Front or rear discharge
- Chain or auger
- Single or dual wing
- One person or two person plowing
- Plow controls
- Material application controllers



## › Cutting edges

- Steel
- Carbide
- Rubber
- Sectional incased in rubber
- Live Edge
- Secondary plow
- Two Stage Plows





# Toolbox

## › Salt Brine

- Anti-Icing (pretreat)
- De-Icing (prewet)

## › Enhancements

- Mag Chloride – (Lower eutectic temp of salt)
- Calcium Chloride
  - › More corrosive
  - › Works at lower temp than salt
- Agricultural Sugars – (Tackifier)
  - › Beet Juice
  - › Sugar Cane
    - Salt treated with Ag products reduces bounce and scatter by up to 50%
    - Corrosion reduction

