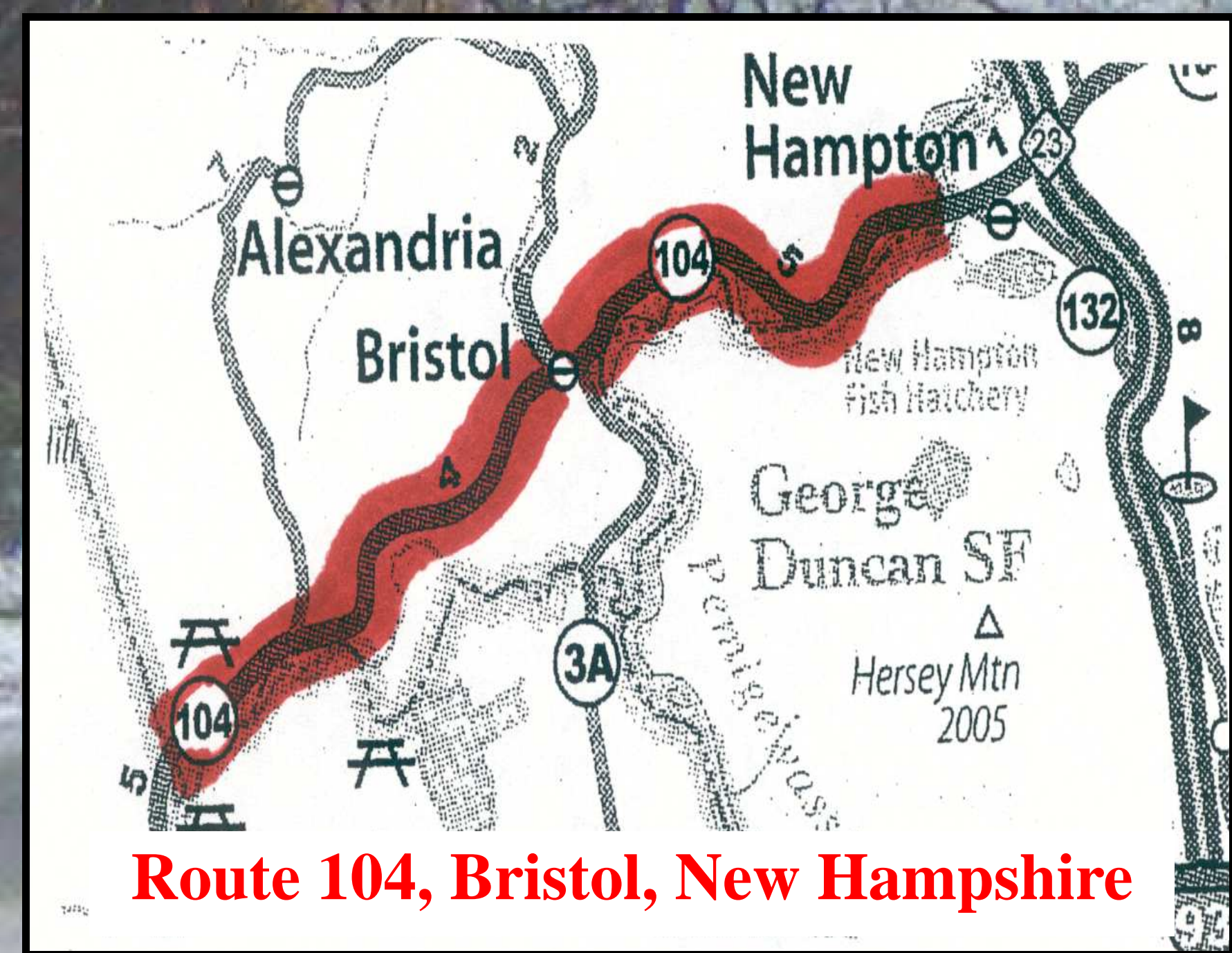


PROJECT GOAL:

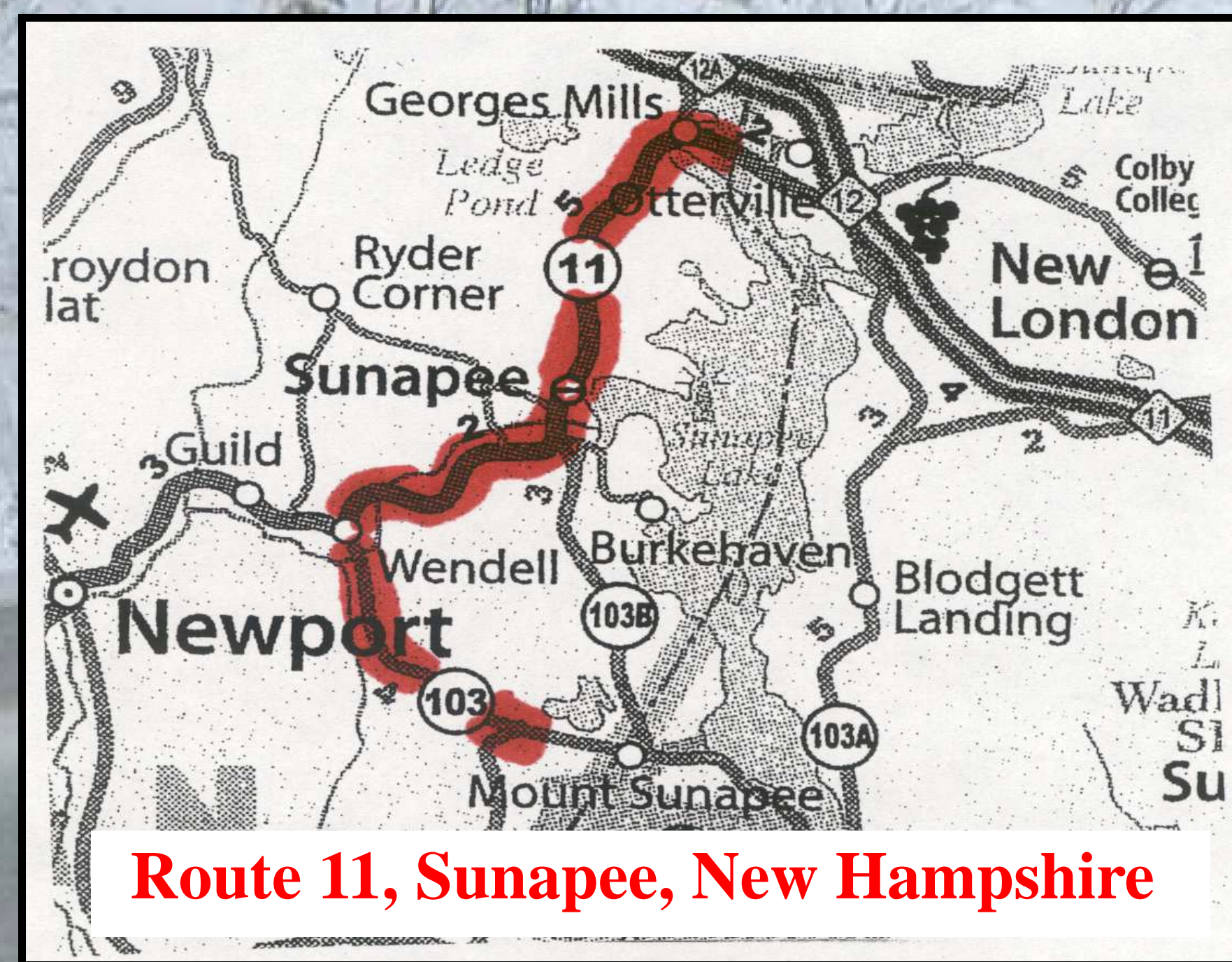
In an effort to find a more cost effective, environmentally friendly roadway deicing chemical, the Department evaluated a proprietary treated salt as an alternate to sodium chloride. The evaluated material is a patented blend of sodium chloride, liquid magnesium chloride, and cane molasses. The product components are blended prior to delivery and it is claimed that the components will not leach out of the stockpile.

The manufacturer claims that this treated salt product provides value greater than that of sodium chloride because a smaller quantity is needed. The sticky nature of the product is thought to reduce the amount that the product scatters, meaning that more of the product stays where it is needed. As less deicing material is used, the impact to the environment should be lessened as well.

This research project sought to quantify the cost difference between the treated salt and sodium chloride and evaluate the performance of the treated salt.



Route 104, Bristol, New Hampshire



Route 11, Sunapee, New Hampshire

CONCLUSIONS:

Although the quantity of treated salt used was less than that of the sodium chloride, the material savings was not enough to offset the higher unit cost of the treated salt. On average, the treated salt cost 26 percent more to use than sodium chloride for the 2003-2004 winter maintenance season.

Although the manufacturer claimed that the molasses/magnesium chloride additive would not leach out of the stockpiled product, some leaching was experienced. This can be mitigated in part by mixing the stockpile when loading trucks with the material.

Although the treated salt may provide some level of increased performance over sodium chloride in certain roadway conditions, additional research would be necessary to fully evaluate this.

The Department continues to evaluate alternative anti-icing and de-icing materials and technologies to provide safe yet cost effective roadways for the traveling public.

Evaluation of an Alternate Deicing Chemical VS. Conventional Sodium Chloride

Partners: NHDOT Bureau of Highway Maintenance
NHDOT Bureau of Transportation Planning
NH Office of Information Technology
NHDOT Bureau of Materials and Research

WHAT WE DID:

Two NHDOT maintained roadways were chosen for this evaluation. Each of these sections were divided into two parts, a test section and a control section. In the course of normal winter maintenance operations, the treated salt was applied to each test section and sodium chloride was applied to the control sections. Quantities of each material used were documented and compared.

To reduce variables in this evaluation, the following measures were taken:

- ◆ At the end of each month, the test sections and control sections were swapped to eliminate variables induced by location.
- ◆ Weather and pavement surface conditions at each site were monitored and documented.
- ◆ Vehicle speeds were monitored as a means of confirming that test and control sections had been treated to the same level of surface condition.
- ◆ Salt spreader calibration was periodically checked to assure accurate and consistent measurement of the quantity of de-icing material applied.
- ◆ The same piece of equipment and operator were used to spread both the treated salt and sodium chloride.
- ◆ Maintainers kept detailed logs of all observations that may have an effect on the quantity of de-icing material used or the performance achieved.

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