# D - EXAMPLES OF SUCCESS IN SALT MANAGEMENT

The following case studies explore the costs and benefits of introducing best management practices and are just a few examples of road maintenance organizations who have taken the lead in responsible road salt management. You may consult the full case studies on Environment Canada's Road Salts Website, **www.ec.gc.ca/nopp/roadsalt/cStudies/en/index.cfm** or request a copy from one of our regional offices.

**Implementation of Anti-Icing and Pre-Wetting Techniques at the Cypress Bowl Ski Area**

The Cypress Bowl ski area reduced its winter maintenance costs by 34% between March 2000 and March 2001 through the introduction of anti-icing and pre-wetting techniques. As a result of these changes, the maintenance crew reduced their annual salt and sand use, and the new practices resulted in an estimated 73% reduction in chlorides released to the environment.

**Remediation vs. Salt Storage Construction at Heffley Creek: A Cost Comparison**

Following the contamination of groundwater used as a municipal water supply from a salt storage site in Heffley Creek, the Province of British Columbia incurred costs of more than $2 million to remedy the situation. These costs included more than $600,000 in claims from local residents for property damage and nearly $600,000 for the replacement of the drinking water sources. Now the province is taking steps to ensure that no new incidents occur. In the last five years, the province has replaced over 30 salt storage sites with new facilities that include salt sheds with underlying salt traps to catch and contain salt-laden run-off.

**Accident Reduction on the 401/416 Ramp using Fixed Automated Spray Technology (FAST)**

A number of weather-related accidents occurred during the first winter following the construction of the Highway 401/416 interchange ramp near Prescott, Ontario. The Ministry of Transportation of Ontario (MTO) had been investigating different methods of improving highway safety during winter storms and saw an opportunity to significantly reduce the potential for icing on the ramp. In the fall of 2000, MTO installed Fixed Automated Spray Technology (FAST) along with an Advanced Road Weather Information System (ARWIS), which work together to apply an anti-icing chemical in advance of an icing condition. Since the installation of these systems, no winter-related accidents have occurred at this location.

### City of Toronto – Salt Use Reductions through Employee Training

Each year, nearly 200 trucks and more than 140,000 metric tonnes of sodium chloride (road salt) are required to maintain the 5,300 km of roads in the City of Toronto during the winter months. With the growing concern over excessive salt use, the City realised it needed to find a balance between maintaining safe, passable roads and managing road salt use and costs.

In 2001, the City developed a salt management plan (SMP) and implemented a salt management training program. As a result of its efforts, the City decreased its mean salt use by almost 37,000 tonnes over two winter periods.

### Salt Reductions through a New Approach to Winter Maintenance Practices - Otterburn Park, Québec

In the early 1990's, the Otterburn Park Town Council became concerned with the amount of salt being used on its roads. To address this concern, the Town began a program to reduce salt use. In the period from 1995 to 2000, Otterburn Park was successful in reducing its total salt use by 73% through improved training, better plowing practices and the use of pre-wetted salt.

### Winter Maintenance Innovations Reduce Accidents and Costs - City of Kamloops

In 1995, the City of Kamloops launched the Winter Road Research (WRR) project with an emphasis on testing the effectiveness of liquid anti-icing. The Insurance Corporation of British Columbia became interested in the project in 1996, and provided funds to help continue and expand the trials. As a result of the trials, during the three-year period from 1997 to 2000, the City of Kamloops experienced a 7% decrease in snow and ice-related accidents. The City also reduced its snow and ice control costs, the amount of sand used and, consequently, its spring-cleanup costs.

### Utilizing Technological Advances in the Management of Road Salt Usage in Nova Scotia

The Nova Scotia Department of Transportation & Public Works (NSTPW) installed its first five Road Weather Information Systems (RWIS) in 1995. The network has since expanded to 19 stations due to a major initiative between December 2000 and January 2004. In this initiative, wherever the Department installs a new RWIS station, the local highway engineer commits to initiating a pre-wetting program in that area, brine-making equipment is purchased and salt trucks are retrofitted to enable pre-wetting. This growth in RWIS and pre-wetting is allowing the Department to take a proactive approach to snow and ice control and has led to a reduction in salt usage.

### Engineered Snow Disposal Facilities – City of Ottawa

The City of Ottawa maintains over 5,300 km of roads spread over an area of 2,760 $km^2$. Each winter, the City disposes of, on average, over 1,500,000 $m^3$ of snow. Such an extensive snow disposal program presents logistical, fiscal and environmental challenges. The City has effectively managed these challenges through a snow disposal program that will phase out unacceptable disposal sites, upgrade existing sites and establish new engineered sites.