

Latest Technologies in Mobile Data Collection for Winter Road Maintenance

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Winter Road Maintenance has been a major growth area for ITS systems in the past few years. More states and municipalities are seeing the benefits of automatic vehicle location systems for snow plows and the number of deployed systems has grown. The experiences from these new deployments led to changes in the system requirements to meet the evolving needs of the agencies and in turn, many new technologies are being developed. This paper will detail some of the latest technologies in mobile data collection for winter road maintenance in the last couple of years. One of the most appealing reasons for mobile data collection system deployments is the ability to better monitor and track the materials spread during winter road maintenance and the associated costs. New reporting capabilities such as integrated cost analysis, allows agencies to view in real time the cost of materials being spread in the field. Instead of having to generate reports at a later date, supervisors are able to see the results in real time and adjust accordingly. Another example is being able to view the historical playback of truck routes that have been plowed, in order to provide quality assurance of snow plow operations. Agencies are adding different functionalities to their systems to maximize their investments. An example of extending the mobile data collection (MDC) functionality is adding cameras to the snow plows to be able to view the road conditions the drivers are seeing and to access the photographs remotely over the wireless connection to the snow plow. This feature provides added value to the public at a low additional cost. Another added functionality is the ability to read engine codes from the trucks. This allows supervisors to track the wear and tear on the vehicles, perform remote diagnostics and generate alarms to improve maintenance. Also, different requirements are emerging for MDC that is used in rural freeway environments versus urban surface street environments. Considering their significant investment in mobile data collectors and automatic vehicle location systems, agencies are also looking to use these systems in the summer months. The on-board mobile data collection units are able to integrate to other devices such as dump truck lift arms and street sweeper equipment as well as summer applications like lane striping, asphalt repairs and leaf collection. Winter Road Maintenance is one of the biggest challenges for agencies charged with providing safe environments for the public. The severity of winter storms during the last couple of winters have created an increased need for winter road maintenance activities, while at the same time, budget issues have forced agencies to do 'more with less' and the use of smarter, more intelligent systems such as mobile data collectors have contributed to address these issues. Manufacturers of these systems are staying on the cutting edge of technology and adapting their systems to the needs and requirements of states and other winter road maintenance agencies both in terms of increased capabilities and reduced costs.