Abstract Number: 034, *"Results Based Benefits of Integrating Technology into a Winter Operations Program"*

The City of West Des Moines, Iowa has utilized technology and enhanced training of employees to implement a more sustainable approach to winter maintenance activities.

The implementation of a full scale automated vehicle location program has provided the agency with detailed data with regards to deicer usage and plowing efficiency. The information also allows the managers the ability to coach employees to optimum performance. Other benefits of the system is the ability to provide more current and accurate information to the public along with reducing potential liability claims against the agency.

The implementation of RWIS into the City's winter maintenance toolbox has provided the agency the ability to more accurately monitor real time road conditions on their street network. One unit is mobile, the other three are fixed mounted and located in various areas of the jurisdiction. The ability to capture real time road friction, pavement temperature and moisture data has significantly enhanced the managers decision making capability with regards to deicer application rates and frequencies.

The utilization of a contract weather service provider and MDSS based treatment recommendations have proven to greatly assist in the managerial aspects of winter weather events. The ability of information from the RWIS systems to be shared with the weather forecasters has led to more detailed treatment recommendations which are utilized by all levels of staff.

The City has utilized various types of liquid deicers over the years. In an effort to maximize the potential of various chemical blends, the City installed an on-demand liquid deicer blending system. When MDSS based storm information is provided, the City now also has the capability to "blend for the storm". This provides the capability to not only determine which blends to utilize in each respective truck, but also to control costs by not having to utilize more expensive deicer products which might not be required for milder storm events.

To maximize the potential of the various tools which have been discussed, the development and delivery of effective training is a critical component. Operators were oftentimes told what to do, but were not provided with the information behind the recommendations. Not unlike other businesses, well trained and informed employees perform at higher skill levels. Now when they are out in the field, they have both the tools and the education to make informed decisions. This knowledge has led to deicer products being used more responsibility and valuable resources not being wasted.

In summary, the utilization of technology and education has significantly increased our overall performance during winter storm events, while reducing our footprint of the environment and budget.