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McHenry County, Illinois Takes Leadership Role in Adding Innovation and Efficiency for Winter Weather Roadway Operations

McHenry County is located approximately 50 miles northwest of Chicago, and is one of the fastest growing counties in the state of Illinois. No longer considered only as a "change of pace" from the urban environment, the county is an exciting, diverse and dynamic region that has almost doubled its population in the last six years. With this dynamic growth, McHenry County could reach a population of one half million people by the year 2020. Rapid growth also creates challenges such as the maintenance of roadways and providing the safest traveling environment possible, especially during the winter months.

Snow and ice are not strangers to this northern Illinois county, averaging approximately 40 inches per winter season. Changing from a rural to a more urban community has prompted the McHenry County Division of Transportation to be more innovative and efficient in its winter operations. The county battles winter storms with 19 plows and supplements them with smaller trucks when needed. Necessity may be the mother of invention, but it also promotes creativity and innovation. Expected by its motoring public to provide the best level of service possible, yet with a limited amount of funding, McHenry County Division of Transportation has risen to the challenge.

Anti-Icing and RWIS

The McHenry County Division of Transportation began anti-icing practices about seven years ago during the 2000-2001 winter season. Anti-icing can save chemical stock and prevent accidents during frost or black ice events. Anti-icing also gives the highway department an edge on storms by having chemical available on the roadways when the snow begins, which prevents the snow and ice from bonding to the road surface.

An important part of anti-icing is having current pavement and weather information – data you can easily access from a Road Weather Information System, or RWIS. "We saw that RWIS was useful and the value

it would provide for our agency," states Mr. Mark DeVries, Maintenance Superintendent for the McHenry County Division of Transportation.

According to Mr. DeVries, McHenry County "did our homework" researching and planning for implementation of an RWIS network. "It took years of planning and budgeting work, but we now have a system in place that will allow us to provide even greater service to the county." McHenry County has commissioned two new RWIS sites, and will begin using them this winter. "We wanted two sites for more data and to better cover our large county. Our long term goal is to have five sites, one in each corner of the county and one directly west of our office."

The snow and ice policy for McHenry County is to achieve bare pavement as soon as the event is over using the least amount of materials and chemicals. RWIS allows McHenry County to monitor the weather event before, during, and after the storm, and provides real data about the road surface, taking the guesswork out of when to perform maintenance actions.

The RWIS equipment and services was provided by Vaisala, Inc. The purchase of the equipment was done using a bid process, with Vaisala providing the proposal that best fit McHenry County's needs.

"Storms mostly move in from the north and west so placement of the RWIS sites was an important part of the process," comments DeVries. "One site, the Kishwaukee River bridge location, is directly west of the maintenance facility in an open area to get true wind speeds, and allows for sensors to be placed on the bridge approach. Bridge data is extremely valuable for frost scenarios and factored into the decision for this location." He adds that the second site, Harmony Road, is in the southwest portion of the county, near an overpass

leading to the Illinois Tollway. This site is where innovation played a key role in the selection process, and one of the major reasons it was selected was to share the RWIS data with the Illinois Toll Authority."

Data Sharing and Hosted Services

"We wanted participation with other agencies because we felt the data would benefit them as well," adds DeVries. "One of the major reasons we decided to implement RWIS was to ultimately share the data with other agencies. We see the big picture – a regional group made up of the City of Chicago, the Illinois Department of Transportation, the Illinois Toll Authority, and McHenry County – all which share RWIS data." Currently McHenry County is only sharing data with the Illinois Toll Authority, and is hoping for future agreements with the other agencies as well.

McHenry County required an RWIS product that met its desire for shared data, and Vaisala offered the most user-friendly solution. Data sharing is best done using software that is hosted by the RWIS provider. This eliminates the need for purchasing a server to collect the data, and with proper agreements from both agencies, allows each agency to view the data from a web-based interface.

Vaisala's unique software package, known as the Vaisala SSI Interactive Hosted Web Navigator, offers several advantages that McHenry County took into account. "With two RWIS sites, we didn't want security issues from owning a server to restrict access to our data," says DeVries. "Also, the Interactive Hosted Web Navigator allows us to access data anywhere – no matter where we are – the office or from home." Users simply enter a password-protected site to view the data. "The [Interactive Hosted Web Navigator] was really the only option for us considering our specifications."

With the Interactive Hosted Web Navigator, users also receive software upgrades without having to manually install them, while data sharing is activated through the hosting agency. "We are willing to share our data with anyone who is willing to share with us," says DeVries, "reciprocal sharing, which was the goal from day one."

Future Plans, Proactive Approach

McHenry County is part of a federal government initiative called Clarus. The Clarus initiative was created to develop and demonstrate an integrated surface transportation weather observing, forecasting and data management system, and to establish a partnership to create a Nationwide Surface Transportation Weather Observing and Forecasting System. The objective of Clarus is to provide information to all transportation managers and users to alleviate the effects of adverse weather (e.g., fatalities, injuries and delays). "Our new RWIS sites are part of the program," DeVries reports. "We don't have a lot of experience yet because our RWIS sites are just now coming online, but we see no reason not to join. Pooling data can benefit anyone needing weather and pavement data. In addition, we can look past winter and use the data for paving, markings, severe weather outbreaks – a lot of extra opportunities for enhancing our operations."

McHenry County's proactive approach has caught the attention of many industry icons. Power RWIS users, emerging technologies in the market such as AVL (Automatic Vehicle Location) and spreader controllers, non-intrusive pavement sensors, friction monitoring, even weather radar inside the plow trucks have all been in contact with McHenry County. "Our involvement with RWIS and anti-icing has opened doors for us," DeVries claims. "Proactive leads to proactive, and involvement in committees and industry organizations is invaluable. These committees and organizations are approaching us because they know we are on the leading edge of innovation for our community, and ready to implement efficient, advanced technologies to better serve our region."