

A Bridge to the Future

The use of Intelligent Transportation Systems remains limited at city and county level of road operations, even though their need for effective tools is the same than that of state or country level departments of transportation. City of Lincoln in Nebraska, USA however uses weather-focused ITS to alert motorists of changing weather conditions on its new 1,886 foot long Harris Overpass bridge.

Harris Overpass in Lincoln, Nebraska.



As we see so many times, no one is immune to dangerous and life changing weather conditions. Agencies large and small responsible for road maintenance feel the brunt of adverse weather and use high-tech tools to combat weather's everyday affects.

State departments of transportation have used Intelligent Transportation Systems (ITS) for the past 30 years to monitor and battle everything Mother Nature can throw at them. The use of such tools is very limited at the city or county levels of operations, even though they need these tools just as much as their larger counterparts.

Are their roads any less important than larger interstates and freeways? Of course not; and neither is their need for the ITS solutions. What about alerting the motorists of dangerous conditions ahead? The need for getting information straight to the people on the road is also the same no matter whether it is a highway or a parkway.

Latest Sensing Technology for Safer Driving and Lower Costs

In 2008, the City of Lincoln, Nebraska in the United States decided that with its new 1,886 foot long Harris Overpass bridge they would use weather-focused ITS to solve a potential problem of changing driving conditions during adverse weather conditions. The City installed road weather monitoring equipment connected to three variable message signs that alert motorists of possible changing road conditions as they approach the bridge.

The system consists of Vaisala's latest road weather technology, including remote road condition sensors. These sensors are mounted on a pole or existing construction beside or above the road and "look down" on the pavement, whereas previous technology required installation of sensors in the road surface. The sensors monitor the bridge and



indicate any time it becomes damp, wet, covered in snow, or ice begins to form on its surface.

The new sensors are a large part of what makes the entire project more affordable for a city to invest in. They also make bridge engineers happy, because no cutting of the bridge deck is required. All in all, the technology reduces overall maintenance costs, is safer to install, and also measures surface friction, which no other road weather sensing technology has been able to do.

Real-Time Alerts with Dynamic Message Signs

The Harris Overpass system activates signs alerting approaching vehicles of adverse road conditions in real-time. Automatic activation offers the benefit of limiting the number of false alarms, which can happen when signs are operated by a human, building a lack of confidence in the traveling public. On the other hand, static signs become a part of the landscape for commuters and other frequent travelers, which over time lessens their effectiveness.

“The flexibility of the dynamic message signs versus static signs really came into play when we had a road closure beyond the end of the bridge and were able to use the system’s overhead mounted signs to warn motorists of the closure,” says Randy Hoskins, Assistant City Engineer for the City of Lincoln.

Quicker and More Accurate Decisions on Winter Maintenance

The data generated from the bridge provides its own significant benefit. Road weather information has long been proven to aid those responsible for keeping the streets clear of snow and ice. The data provides critical information to road maintenance operations and enables them to make decisions quicker and more accurately. The city of Lincoln is able to combine these benefits to make the most of their high-tech tool.

The Harris Overpass proves that no matter what the size of the road operation, applications such as the one installed in Lincoln can lower costs while keeping motorists



Remote road condition sensors monitor the Harris Overpass bridge surface, and automatically activate overhead mounted variable message signs to alert approaching vehicles of changing road conditions.

safe. According to Randy Hoskins, “the public really appreciates the information regarding conditions on the bridge. The only problem is now they want it everywhere.”

Further information:
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