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Managing
Winter Service

Allocating resources where they are most needed is key to successful operations. Outsourcing the non-core business activities to reliable partners is a growing trend - also when it comes to Road Weather Information System (RWIS) maintenance and data management.

There has been a rapid growth in investment in RWIS technology in North America in the last three years. Much of the investment has focused on stand-alone systems intended to be operated by highway maintenance personnel to aid decision-making during winter storms. RWIS are increasingly seen as an essential tool to do the job efficiently. By contrast, responsibility for maintenance and data management of the RWIS is often overlooked as both an unnecessary cost and a drain on limited IT resources. Outsourcing offers a flexible and cost-effective alternative.

Aurora City – investing in peace of mind

The street maintenance division of the City of Aurora in Colorado, USA, has the responsibility for procuring and managing contracts for the provision of winter service on more than 1000 miles of roads both in and around the City. Provision of an effective winter service is a difficult task in Colorado's harsh winter climate, one which requires forward planning. Remote weather information technology has a key role to play in determining the correct winter service action.

The importance of accurate, timely data being available 24 hours a day is one of the main reasons why the City of Aurora has chosen Vaisala for the provision of a complete data management solution, the Vaisala Bureau Service. This involves not only the supply of remote road weather stations but the responsibility for ensuring the continuous flow of data to the street maintenance personnel around the clock.

A number of Vaisala weather stations are located at strategic points on the road network. These provide a continuous source of road weather information including details of the road surface condition and temperature as well as the general state

of the atmosphere, for example air temperature and precipitation. The information is automatically transmitted to Vaisala's data management center where it is stored and processed. Aurora's maintenance engineers access the data via web browser in a configured display of graphical and textual images. Data are updated every 20 minutes.

Continuous and accurate data supply are two of the most important criteria for the City of Aurora. To address these points, the data management solution incorporates a number of safeguards and monitoring functions. Weather station calibration and servicing is offered prior to the start of winter. Once the winter starts the Bureau is manned 24 hours per day, 7 days per week to provide a continuous backup and ensure smooth operation. By duplicating communication structures and other processes the Bureau ensures a reliable service.

Every time a new piece of data is received by the data center from a weather station it is automatically scrutinized for errors and any evidence of calibration drift. If an error does occur at any time Vaisala maintenance personnel are on constant standby ready to carry out repairs in a timely fashion and bring the station or sensor back online as quickly as possible.

In the words of Aurora's Project Engineer, Lynne Center "This solution is making a real difference. We can rely on the system to provide good quality road weather information when we need it. It's really easy to get hold of the data both in the office or at home. Vaisala just takes care of the system and we can concentrate on using the information to keep our roads safe."

E-470 maintenance – a strategic partnership

E-470 is a highway that runs along the eastern perimeter of the Denver metropolitan area. The E-470 Public Highway Au-

thority has a need to keep on top of winter storms and ensure that its customers, the driving public, have a safe road on which to travel at all times. The E-470 Public Highway Authority is working with Vaisala for the supply of road weather forecast services. The Vaisala Bureau Service is being used to facilitate this, as it also has the capability of producing and delivering forecast information, as well as managing weather station data.

Working in partnership with a local forecast provider for the supply of atmospheric data, a number of 24 hour forecasts are generated by the Vaisala Bureau Service each day for strategic weather station points on the highway. Forecasts comprise a range of browser based products tailored for the E-470 Public Highway Authority. Each graphical forecast provides detailed information on the expected temperature and road condition for the coming 24 hours, which can be directly compared against measured data from the weather station points. To complement these point forecasts, forecast thermal maps of the complete highway are also provided. These indicate which sections of road will fall below freezing and at what time, giving crucial information in sufficient time to take preventative treatment action.

The Vaisala Present Weather Detector PWD22 has been included in a Vaisala weather station installed on the E-470 network. The instrument is capable of detecting a range of different frozen and non-frozen precipitation types, including freezing rain, as well as providing a measurement of visibility at the site. The ability to classify different types of precipitation remotely is a major advantage for maintenance personnel when determining the correct treatment response.

The E-470 Public Highway Authority can access the forecast and weather station data using a

web browser. The web browser access is called Vaisala IceWeb and is available to any of E-470's personnel or nominated winter service contractors via the use of a password. ●

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Vaisala Bureau Service

The service incorporates a number of modules each tailored to customers' requirements. One over-riding priority is that data ownership remains with the customer at all times. Data management has a number of advantages over the more traditional route of purchasing a stand-alone RWIS server:

• **Peace-of-mind:** customers pay for timely, accurate data provision. Vaisala takes care of all elements of data provision, including communication and maintenance. A 24/7 staffed helpdesk facility ensures that telephone support is always available.

• **Flexibility:** the service is tailored to include only the services required. Additional services can be added as customer needs change or new products become available.

• **Cost-effectiveness:** Vaisala supply the service in one package. There is no server hardware to be maintained by customers' IT personnel, no communication problems to solve, basically no hassle. Access to a web browser is all that is needed.

By utilizing the Vaisala Bureau Service, maintenance personnel can delegate the responsibility of data management and concentrate on the core responsibility of managing the highway network. ●