

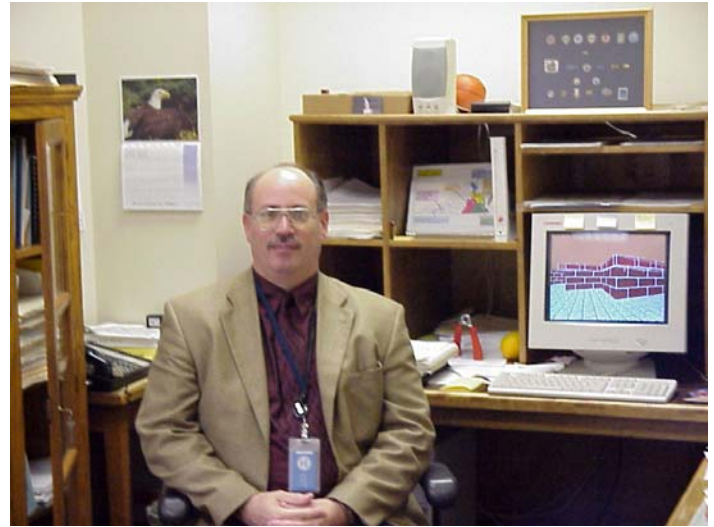


## Leading the Way: Profile of an Early ESS Deployer Perry Cogburn and Virginia DOT (VDOT)

### ***Describe your ESS deployment. What data are your sensors collecting? Who uses the weather data that your sensor stations collect?***

We have a total network of 41 SSI (Surface Systems Inc.) stations deployed throughout the state, with over a third of our stations located in the northern part of the state, where traffic is the heaviest. Our stations collect data on pavement temperature and wetness, air temperature, humidity, wind speed, wind direction, precipitation, visibility, and subsurface temperatures. Data from these sites are used to generate 24-hour pavement forecasts.

The primary users of our weather data are VDOT area superintendents and operations managers. These are the people who determine when and where maintenance staff is deployed to respond to different pavement and weather conditions. The data we collect provide them the tools they need to decide how many maintenance workers are needed to treat roads and whether additional staff need to be placed on call.



Perry Cogburn graduated from the University of Maine with a Bachelor of Science Degree in Wildlife Management in 1976 and from Rensselaer Polytechnic Institute with a Master of Science Degree in Environmental Planning in 1980. He spent 14 years with the Maine Department of Environmental Protection as an Oil and Hazardous Material Specialist, the last 7 as the supervisor of a regional response team. Since 1994, he has been the Deputy Director of the Virginia Department of Transportation's Emergency Operations Center, where one of his duties is coordinating the Maintenance Division's RWIS program.

### ***Why did you decide to use NTCIP standards?***

We have a really good ITS group at VDOT and these folks advocated using standards in our ESS deployments. There is also a shared understanding within the agency that standards best serve our long-term interests as we expand our ITS network. In terms of how we began to use standards, we put out an RFP for a vendor to either retrofit our SSI devices to make them compatible with NTCIP standards or to supply us with new hardware and software that were designed to meet the standards. We selected a vendor that proposed to upgrade our sensors' RPU's (remote processing units) with hardware and software that would be compatible with NTCIP standards. The end result left us with stations that were NTCIP-compatible from the RPU to the network. The communication between our sensors and our RPU's, however, remained a proprietary SSI system.

### ***What challenges did you encounter when you integrated sensors that use ESS/NTCIP standards with your legacy systems?***

One challenge was determining whether our upgraded equipment would meet the NTCIP standards, particularly because the standards, at the time we upgraded, were not as mature as they are today. To help with this, we worked closely with a consultant who was also a member of the NTCIP working committee. Our consultant worked with SSI to develop a testing procedure that eventually got us to a level where all parties—VDOT, our consultant, and SSI—agreed that the upgraded equipment met the spirit of the standards.

Another challenge that we encountered, although it does not relate directly to standards, involved trying to transfer data from remote areas that lacked access to phone lines. A few of our sensing stations are placed at geographic locations that currently lack access to telephone lines. We are still trying to devise a reliable method of transmitting data from these sites. One alternative method for transferring data that we're looking at now is CDPD (cellular digital packet data). We are still trying to get the data from our CDPD site onto our Intranet site.

### ***What were your experiences like working with a consultant?***

Overall, it was a positive experience because part of our working group for this proposal included individuals who were on the NTCIP working group. We benefited greatly from their participation in the process. We also benefited greatly from VDOT's participation in the INCH Program\* at ENTERPRISE\*, which helped us consider testing issues related to our RFP and NTCIP standards.

\*For more information about the Integrating NTCIP Hardware (INCH) Program and the ENTERPRISE Program, visit [www.enterprise.prog.org](http://www.enterprise.prog.org).

***What advice can you give on how to write ESS/NTCIP standards into your procurement proposal?***

My advice is to find a consultant who has worked with NTCIP standards in the past and who is knowledgeable in the area of ESS and RWIS. As I mentioned earlier, we chose a consultant who had extensive experience with the standards through his work on the NTCIP Working Group. It is also important to look at the types of projects a consultant has worked on in the past. I would also recommend that before you write up any procurement for sensing stations, you decide what kind of weather data you want to collect because this will determine where you place your stations and equipment.

***Has the use of ESS/NTCIP standards had any impact on vendor selection and commodity price for your ESS devices? Have you found that ESS/NTCIP standards allow greater interchangeability between ESS devices from different vendors?***

So far we have not seen a big change in price, mainly because we are still limited to purchasing our sensors from a single vendor. In our deployment, the NTCIP standards control communications from the RPU outward. Right now, there are no standards from the RPU to the pavement or atmospheric sensors. Therefore, each vendor's equipment is still proprietary and non-interchangeable. For example, we would not be able to use one vendor's pavement sensor with another vendor's RPU.

***What benefits do you expect to attain from using ESS/NTCIP standards?***

In the long run, we expect that ESS stations from multiple vendors will be able to report to a common database and be displayed there, instead of having three or four different databases, one for each vendor. This will mean that we will be able to obtain information on all our stations and our RWIS from one central terminal.

***In what ways have ESS/NTCIP standards affected the operations and maintenance of your sensors?***

So far we have not had any changes in our operations and maintenance procedures because of the standards. But as I said before, standards should make it easier to share data and should give states the opportunity to enter into regional partnerships to share weather data and information. So ultimately, standards will help us do our jobs more efficiently and provide a greater range of services to the public.

***What other sensing stations would you like to deploy or weather data would you like to collect that you haven't yet? Do you anticipate that ESS/NTCIP standards will help with the integration of these devices into your RWIS?***

I would like to get out of the business of putting sensors in pavement and find a different, non-intrusive device for measuring pavement conditions. One of the biggest problems we face is that sensors can be damaged during maintenance and paving operations. Given that each sensor can cost up to \$4,000, this can be a significant drain on our resources.

***Do systems that use ESS/NTCIP standards add to your capacity to coordinate with ESS or ITS devices used by other transportation agencies in your region?***

We have not made those direct connections yet, but standards will make sharing information easier because they provide a common and uniform format for sharing information between networks. The weather data that we collect can be shared and understood by a neighboring state if that state uses an RPU that is compatible with NTCIP standards. This would expand the reach of our ESS network and contribute to safer roads in our state and in neighboring states.

Also, although we currently do not tie our RWIS information to permanent message board activation or traffic signals, this may be a possibility for future expansion, especially given that the NTCIP standards are also used in our variable message signs. Another area where NTCIP standards may be beneficial is with the automated anti-icing spray systems. If we can get uniform specifications on what activates the spray system, then it would not matter what vendor's spray system was used.

***For your colleagues who might be on the fence about using ITS standards, what is the strongest argument you can think of for using standards sooner rather than later?***

The biggest advantage is in the area of consistency and uniformity of data. Standards provide a common platform for receiving and viewing weather data and open the door for integration with other ITS systems, both within VDOT and with our neighboring states.

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***Note: The U.S. DOT does not endorse the manufacturers listed in this profile. The manufacturers' names appear because they are considered essential to the objectives of this document.***

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-Perry Cogburn



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