4.4 THE USE OF WEATHER INFORMATION FOR DECISION-MAKING IN A PERFORMANCE-BASED ASSET MANAGEMENT CONTRACT

Eloisa Raynault*, Mark Robinson
Science Applications International Corporation (SAIC), McLean, Virginia
Simon Rennie, District of Columbia Department of Transportation (DDOT), Washington, DC
Edward Sheldahl, Federal Highway Administration (FHWA), Washington, DC

1. INTRODUCTION

The District of Columbia Department of Transportation (DDOT), in partnership with the Federal Highway Administration (FHWA), has competitively contracted with a private contractor, VMS, Inc. (VMS), to preserve and maintain approximately 75 miles of the major streets and highways in the Nation's Capital. These roadways constitute the District's portion of the National Highway System (NHS) and are considered the "gateways" to the Nation's Capital. This performance-based asset management project, known as DC Streets, is the first urban performance-based effort of its kind in the United States, and it covers all transportation infrastructure assets, right-of-way to right-of-way, with the exception of traffic signals. A key, and politically hot maintenance category in the contract is snow and ice control.

Under a performance-based contract, the desired outcomes or conditions are specified, rather than specifying what to do or how to do it. The contractor decides how to use his/her resources to meet the specified outcomes or performance standards. The performance standards specified for snow and ice control in the DC Streets contract are those in the Metropolitan Washington Council of Governments' "Penguin Guide", a brochure that informs District of Columbia citizens of what to expect in terms of the time it will take for the roads to be cleared following storms of varying severity.

2. WEATHER TOOLS

Accurate weather information and forecasts are vital to the snow and ice control operations under the contract, and the project partners use a number of weather-related tools. The aim of the tools is dual; first, storm forecasts control contractor deployment time.

DDOT uses meteorological data to determine when to deploy VMS' forces. If the decision to deploy is made too early, it costs DDOT extra money. If the decision to deploy is made too late, snow and ice can accumulate quickly without having the necessary resources in place to remove it. Secondly, contractor payment is based upon event severity; snow accumulation totals must be accurate, recognized measures.

The project partners have utilized multiple winter weather forecasting tools:

- A daily "Snowcast" using the National Weather Service (NWS) Digital Zone Forecast Matrix (RDF) information is distributed electronically throughout the winter to the project partners.
- A "Winter Weather Watch" electronic tool is used to track snowfall at weather stations located on three defined tier lines at varying distances from the District. Internet Hyperlinks in the tool direct the user to the NWS Current Weather Conditions web site for that station.
- DDOT's Closed Circuit Television System is used during the storm to check real-time road conditions to determine where additional resources may be required.

As for event severity conclusions, the project partners use the NWS snow accumulation totals measured at DCA as the final measures. The data is both rigorously quality controlled and widely accepted.

These solutions are some methods the project team implements for timely response to snow and ice events in the District. The project team looks forward to using additional innovative weather technologies in the remaining years of the project.

3. ACKNOWLEDGEMENTS

The authors would like to acknowledge the Federal Highway Administration and the District of Columbia Department of Transportation for their project support.

* *Corresponding author address*: Eloisa Raynault, SAIC, McLean, VA 22102; e-mail: eloisa.t.raynault@saic.com.