Multistate Control Strategy Tool

Clarus Regional Demonstrations

Many traffic management events in one jurisdiction can have impacts on neighboring jurisdictions, including increases in traffic congestion or secondary collisions that cross jurisdictional boundaries.

The Federal Highway Administration (FHWA) recently tested a Multistate Control Strategy Tool that integrates weather and other traffic information enabling system operators to better manage the transportation network. This tool allows multiple agencies to better coordinate and respond to real-time situations, and disseminate safety and other information to people, thereby improving operations and reducing travel frustration.

The Multistate Control Strategy Tool is part of the *Clarus* Initiative's regional demonstration projects where state and provincial departments of transportation provided ideas for five new potential uses for *Clarus* data.

The *Clarus* Initiative, a joint effort of the U.S. Department of Transportation Intelligent Transportation Systems (ITS) Joint Program Office and FHWA's Road Weather Management Program (RWMP), is a six-year effort to develop and demonstrate an integrated weather observation data management system that can reduce the impact of adverse weather conditions on surface transportation.

Improved Communication

In the past, many departments of transportation (DOT) made traffic management decisions based on current conditions within their own jurisdictions, generally not communicating with their neighbors. Since no interjurisdictional communication procedures existed, any contact was at the discretion of a supervisor.

This lack of coordination makes managing the system more difficult particularly with increased congestion that leads to frustration across agencies and the traveling public. Furthermore, people have come to rely on and expect good information wherever they are, regardless of state or local boundaries.

The objective of the Multistate Control Strategy Tool is to provide data and strategies, which will improve coordination between agencies especially with respect to adverse weather. This coordination, based on real-time conditions and proven traffic control strategies, will assist agencies in proactively responding to situations across jurisdictional boundaries, thereby improving the experience of all system users.

How it Works

Most states have Environmental Sensor Stations (ESS), which record atmospheric, surface, and subsurface weather observations. This data is collected and sent to the Clarus system, which performs quality checks and disseminates the information.

This photo, courtesy of the Iowa Department of Transportation, shows a flooding incident which is one of the weather events the Multistate Control Strategy Tool is designed to address.

Road weather models create enhanced forecasts based on *Clarus* observations, in conjunction with other weather data, including near real-time information for local areas.

The Multistate Control Strategy Tool then integrates the *Clarus* observation data and enhanced forecasts with additional traffic system data, such as information on the following:

- Restrictions or road closures;
- Major incidents or delays;
- Active construction zones; and
- Maintenance activities.

It also integrates this data with generalized and department-specific rules of practice. Based on the integrated data, the Multistate Control Strategy Tool provides operational strategy recommendations to the participating agencies. As weather situations change, the Control Tool will continue to integrate new information and recommend additional strategies.

This continuous feedback process allows participating agencies to make proactive decisions based on the impacts of weather, events, conditions, and decisions in neighboring jurisdictions, as well as what has happened in their own. Proactive responses may include the following:

- Implementing detours or retours across boundaries;
- Implementing weather-based vehicle restrictions;
- Deploying appropriate public safety and law enforcement personnel;
- Invoking mutual aid agreements;
- Deploying portable message signs;
- Notifying media and information service providers; and
- Disseminating weather-related alerts to travelers.

In addition, the Tool allows information access by other interested parties, including transportation agencies; Federal, state, and local law enforcement agencies; emergency service agencies; fleet managers; information service providers; and media providers. Recommendations and strategies are presented through map-based graphics and text-based formats provide information on the recommendations and strategies.

Benefits

The tool has a number of benefits including the following:

- Improves coordination by engaging multiple agencies and departments regarding activities in a timely and efficient manner;
- Mobility is increased through improved throughput at incident locations and through the coordination of agencies;
- Timeliness is enhanced because agencies receive notifications of weather-related "triggers" that enable them to deal with sudden weather impacts on the road such as frost on bridges; and
- Traveler Satisfaction is enhanced due to improved mobility.

A significant challenge of this use case was the utilization of the Multistate Control Strategy Tool in conjunction with the communication systems of several different agencies. Road weather knows no boundaries and this use case demonstrated solutions and tools to deal with weather events does not need to recognize them either.

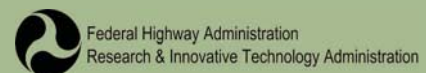*To obtain a copy of the software, please contact Paul Pisano of the RWMP.*

All photographs courtesy of RWMP except as otherwise indicated.

This screenshot from the Multistate Control Strategy Tool demonstrates how you can choose a location utilizing a bounding box and establish a location for future use. Courtesy of Mixon Hill, Inc.

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Federal Highway Administration
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"Anytime, Anywhere Road Weather Information"

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