

Best Practices for Road Weather Management

Version 3.0

Kansas DOT Road Weather Information for Travelers System

The Kansas Department of Transportation (KDOT) Road Weather Information for Travelers System shares road condition information with the traveling public in Kansas. This information is used for making travel decisions before travel commences and during travel. Initially, the information was provided by a road condition website, known as KanRoad, and a toll-free hotline that provided periodic information and required manual recordings about general road/weather condition information.

In 2000, the United States Department of Transportation was granted the 511 number for disseminating traveler information. Additionally, the Federal Highway Administration made funding available that helped KDOT evaluate its traveler information system for content, method/frequency of delivery, cost, accuracy and reliability. KDOT decided to deploy a Statewide 511 System that would ultimately provide significant improvements over the existing KDOT hotline used during the winter months.

The Kansas 511 System was deployed in January 2004 and is a fully automated system that provides near real-time route and segment-specific information for state highways and Interstate highways. Kansas 511 is also fully interoperable with the Nebraska 511 System, so callers may also get complete information regarding Nebraska highways, and vice versa. Phone numbers are provided for roadway information in all other states adjacent to Kansas. Information provided includes road conditions, work zones, closed lanes, ramps or roads, incidents, major events, emergency travel information and weather, including route/segment-specific “now casts” and forecasts for up to six hours.

In 2009, KDOT launched KanDrive, <www.kandrive.org>, a one-stop gateway for travel information in Kansas and surrounding states. Content includes weather-related driving conditions, work zones, traffic incidents and weather information through a variety of communication media. It also provides travelers with other helpful travel information as noted below. Site features include:

- Interactive, online color-coded 511 Map (KanRoad re-branded to 511) that provides statewide, regional and metro area (Kansas City, Topeka/Lawrence, or Wichita) views.
- Camera views (both still and motion views for some locations)
- Current messages on Dynamic Message Signs
- Road Weather Information System (RWIS) map; National Weather Service Watches/Warnings and weather-related safety travel information
- Links to other helpful travel information, including metro traffic information for Kansas City and Wichita, data from roadway weather stations (RWIS), neighboring states’ travel information, the Kansas Turnpike Authority (KTA), maps of the state, counties and cities, services for over-the-road truckers, and tourist information.

System Components: The KDOT Road Weather Information for Travelers System consists of the following:

- 511 phone system
- 511 Map <511.ksdot.org> that provides travel information similar to that provided on the 511 phone system
- KanRoad System within KDOT that provides the data for the 511 phone system and 511 Map

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- KanDrive web site (a travel information portal) found on the KDOT general web site, <ksdot.org> or directly accessible from <www.kandrive.org>. This includes links to KC Scout, WICHway, Amber Alert, and the 511 Map.
- 511 Mobile Website <511mm.ksdot.org>
- Road Weather Information System (RWIS) maps that display atmospheric weather and pavement sensor data received from KDOT's remote processing units that are positioned strategically across the state.
- Wi-Fi/KIOSKS (planned) at KDOT Rest Areas, Travel Information Centers and State Parks
- Snow gates along I-70 that are currently operated manually when deployed. Prior to snow gates, barricades were utilized.

System Operations: The system includes road condition information gathered by KDOT staff. Typically this is the road superintendent, supervisor or office staff, culling information from equipment operators. Using staff at these levels has provided consistency that was lacking with initial efforts using equipment operators only.

KDOT is contracted with Meridian Environmental Technology to provide weather forecasts for the Kansas roadways on the 511 Phone System and with Telvent DTN to provide weather forecasts to Statewide KDOT field decision makers. Weather conditions include snow, ice, hail, thunderstorms, winter storms, fog and burning. Flooding is reported as a roadway event. Usage of the phone and website is year round, rather than solely focused on the winter.

All information provided on the 511 Phone System and 511 Map is fully automated, following initial manual data entry. Information is updated in the system within 5 minutes of data entry. Improvements to the system are based on information developed in the formation of a strategic plan, acknowledging resource constraints. Annual improvements, whether large or small, must be completed prior to the start of the winter season. This means testing must be completed by showing successful implementation of new features prior to October 1.

A KanDrive Support Plan has been developed to provide important procedures, documentation and consistent, efficient communications for KDOT, at both headquarters and District staff levels. The plan includes not only procedures during business hours, but also for after-hours operations and communications.

Transportation Outcome(s): The KDOT Road Weather Information for Travelers System is able to provide road conditions, weather, and lane or road closures due to construction, maintenance, or incidents. An informed traveler is able to make decisions that are safer while providing optimum mobility. Today's travelers expect this content and a range of delivery modes to be available to them in Kansas.

Implementation Issues: Initial deployment challenges included working with landline and cell phone companies across Kansas. Initial work included engaging the assistance of the Kansas Corporation Commission. This work was critical in the development of the 511 phone system.

Developing the "behind the scenes" weather condition-gathering system included the assistance of a Working Group, and significant contributions from field staff. This development activity has been modified so as to provide more consistency across the state.

Reduced staff at KDOT has produced instances where timeliness of reporting has been affected. For example, the person who plans to enter the conditions may have to assist with plowing operations, which diminishes time available for data entry. At the same time, Districts

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have aided neighboring Districts with manpower to mitigate effects of weather conditions and to post road weather-related information on the Dynamic Message Signs (DMS).

KDOT's urban Transportation Management Centers have aided in providing after-hour operations as needed for the cameras and DMS. This aids in quality and timeliness of the information. KC Scout's weather integration project has also provided invaluable assistance in generating emergency weather messages for DMS and in coordination with 511. It has further assisted with coordination between the National Weather Service and other state transportation partners and their communications.

The list of partners needed to implement this system was comprehensive, involving several bureaus within KDOT and partners from other agencies or organizations such as the Kansas Highway Patrol (KHP). KDOT has initiated several email distribution lists that can target certain groups within KDOT or other partner agency personnel to facilitate efficient communications with all extended team members, such as operations, technology, or public affairs.

Funding has been a challenge. Limited funding sources as well as funding amounts and resources are not consistent from year to year. Improvements to the phone system, the web site, the mobile applications and remote use such as at kiosks need to be broken out into phased improvements. Such a strategy may not be optimal from a development standpoint.

Finally, the partners at KDOT have learned that an important function of disseminating road weather information is to temper the expectations that motorists have in travel times.

Contact(s):

- Barb Blue, KDOT, Advanced Traveler Information/ 511 Program Manager, BBlue@ksdot.org
- Troy Whitworth, KDOT, Staff Maintenance Manager, Troy@ksdot.org
- Mary Beth Pfrang, KDOT, GIS Applications Project Manager, Marybeth@ksdot.org

Reference(s):

- 511, when called in Kansas, by either landline or cell phone, or 1-866-511-KDOT (5368) from anywhere in the U.S.
- 511 Map <511.ksdot.org>
- 511 Mobile <511mm.ksdot.org>
- KanDrive <www.kandrive.org>
- RWIS public site <<http://www.ksdot.org/burcompser/generatedreports/weather.asp>>
- KDOT Home page <www.ksdot.org>

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