Weather or Not?
State Liability and
Road Weather Information Systems (RWIS)
WEATHER OR NOT?
STATE LIABILITY AND ROAD WEATHER INFORMATION SYSTEMS (RWIS)

By Jaime Rall
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CONTENTS

Preface .............................................................................................................................................................v

Acknowledgements ......................................................................................................................................... vii

Acronyms .................................................................................................................................................... viii

Executive Summary ....................................................................................................................................... ix

1. Introduction ................................................................................................................................................. 1
   Purpose ....................................................................................................................................................... 1
   Target Audience .......................................................................................................................................... 1
   Methodology .............................................................................................................................................. 2
   Content and Organization .......................................................................................................................... 3

2. Road Weather Information Systems (RWIS) .......................................................................................... 4
   The Effects of Weather on the Nation's Roadways ....................................................................................... 4
   Why Road Weather Information Systems (RWIS)? ..................................................................................... 4
   How RWIS Works ...................................................................................................................................... 5
   Using RWIS to Support Road Weather Management Strategies ............................................................... 6
   Benefits and Costs of RWIS ........................................................................................................................ 7
   Current Use of RWIS by State Departments of Transportation ................................................................. 8
   Nationwide RWIS Data-Sharing: The Clarus Initiative ............................................................................... 10

3. RWIS-Related Liability Concerns ............................................................................................................. 11
   Direct Dissemination of RWIS Information to the Traveling Public ........................................................... 11
   Indirect Dissemination of RWIS Information: Third-Party Issues ............................................................... 12
   DOT Responses to RWIS Information: Actual or Constructive Notice ...................................................... 12
   Liability for Not Using RWIS ..................................................................................................................... 13

4. Legal Context for RWIS-Related Liability ............................................................................................... 15
   Tort Liability ............................................................................................................................................... 15
   Overview of Tort Liability and Related Concepts ....................................................................................... 15
   The Role of RWIS in Reducing Exposure to Liability .................................................................................. 16
   Undertaking New RWIS-Related Duties ....................................................................................................... 17
   RWIS as Potentially Raising Standards ..................................................................................................... 19
   RWIS and Actual and Constructive Notice .................................................................................................. 20
   Sovereign Immunity .................................................................................................................................... 21
   State Waivers of Sovereign Immunity .......................................................................................................... 22
   Exceptions to Waivers of Sovereign Immunity ............................................................................................ 23
   Statutes Relating to Immunity for Highway Defects and the Effects of Weather .......................................... 28
Preface

Road weather information system (RWIS) technologies give state departments of transportation (DOTs) unprecedented access to detailed, timely, roadway-relevant weather information that is used to support operations and maintenance decisions that affect public safety, mobility and productivity. In general, RWIS helps states keep their roads safe and so is a valuable tool for reducing exposure to certain liabilities. As with any new innovation, however, RWIS also has raised liability concerns that must be addressed with care.

In 2009, the National Conference of State Legislatures (NCSL) collaborated with the Federal Highway Administration (FHWA) Road Weather Management Program to produce this report on RWIS-related liability issues. The information in this report is based on survey research, interviews with state transportation and legal experts, legislative and legal research and other resources.

*Weather or Not? State Liability and Road Weather Information Systems (RWIS)* is intended as a resource to help state legislators and DOT personnel understand the liability concerns related to the use of RWIS technologies and to provide them with a menu of strategic options for addressing those concerns. Taking such actions can not only reduce exposure to liability, but also maximize the benefits of these innovative technologies for the traveling public and the agencies that manage the nation’s roadways. The report also contains detailed lists of relevant statutes and legal statements for all 50 states and the District of Columbia.
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ACRONYMS

CCTV — Closed-Circuit Television
DOT — Department of Transportation
ESS — Environmental Sensor Station
FAA — Federal Aviation Administration
FHWA — Federal Highway Administration
FTCA — Federal Tort Claims Act
NCSL — National Conference of State Legislatures
NWS — National Weather Service
RWIS — Road Weather Information System(s)
TOU — Terms of Use (Agreement)
EXECUTIVE SUMMARY

Road weather information system (RWIS) technologies give state departments of transportation (DOTs) unprecedented access to detailed, timely, roadway-relevant weather information. This information is used to support operations and maintenance decisions that affect public safety, mobility and productivity. In general, RWIS helps states keep their roads safe and so is a valuable tool for reducing exposure to certain liabilities. As with any new innovation, however, RWIS also has raised liability concerns that must be addressed with care.

This report is intended to help state legislators and DOT personnel understand RWIS-related liability concerns and to provide a menu of strategic options for addressing those concerns. Taking such actions can not only reduce exposure to liability, but also maximize the benefits of these innovative technologies for the traveling public and the agencies that manage the nation's roadways.

The report begins with an overview of RWIS technologies including their current use in the states. Specific RWIS-related liability concerns—as expressed by experts in the states—are then described, followed by an explanation of the broad legal context within which those concerns may be better understood. The report closes with a list of strategic options available to DOT personnel and legislators to help reduce a state's liability exposure related to RWIS use. Detailed lists of relevant statutes and legal statements for all 50 states and the District of Columbia also are included.

Road Weather Information Systems (RWIS)

Weather significantly affects the traveling public and the transportation agencies that operate and maintain the nation's roadways. Recent studies estimate that 24 percent of all crashes and 17 percent of traffic fatalities are weather-related—more than 1.5 million accidents per year, resulting in over 673,000 injuries and nearly 7,400 fatalities.† Adverse weather also is the second-largest cause of non-recurring highway congestion, accounting for approximately 15 percent of traffic delays nationwide. Winter road maintenance alone accounts for about 20 percent of state DOT maintenance budgets. State and local transportation agencies spend more than $2.5 billion each year on snow and ice control operations, and more than $5 billion to repair weather-damaged roadway infrastructure.

State and local transportation agencies require accurate, timely and roadway-relevant weather information to effectively and efficiently promote safety, mobility and productivity in the face of weather-related challenges. During the last few decades, state and local transportation
agencies have increasingly used RWIS technologies—comprising hardware, software and communications interfaces—to collect, transmit, process and disseminate information about weather conditions on or near roadways. Agencies use this information to support a wide range of operations and maintenance decisions that affect safety, mobility and productivity, such as those pertaining to advisory strategies (traveler information), control strategies (regulation of traffic flow and roadway capacity) and treatment strategies (road treatment and snow and ice control). Some strategies can be automated based on RWIS data.

All current studies indicate that the benefits of RWIS far outweigh its costs, with an estimated benefit-cost ratio of between 2:1 to 10:1. In Utah, for example, using RWIS-supported forecasts saved $2.2 million per year in labor and material costs for snow and ice control activities—18 percent of the annual winter maintenance budget. RWIS also provides safety benefits. In Idaho, in addition to reducing labor hours by 62 percent and material costs by 83 percent, using RWIS-supported anti-icing strategies also reduced crashes by 83 percent. In Minnesota, an automated de-icing system reduced winter crashes by 68 percent, and in Tennessee, an RWIS-based fog detection and warning system decreased fog-related crashes from more than 200 between 1973 and 1994 to only one in the nine years after the system was implemented. Such systems also can reduce the rate of secondary crashes and improve mobility by addressing incident-related delays.

The current use of RWIS by state DOTs is widespread. As of 2009, at least 44 states and the District of Columbia reported using RWIS. Further, as of 2009, 33 state DOTs and three local transportation agencies were sharing RWIS data via the Clarus Initiative, a North American integrated weather observation and data management system, which collects and quality checks road weather information and makes it available “anytime, anywhere” to all transportation users and operators.

RWIS-Related Liability Concerns

RWIS has been in development for decades, but its implementation by state DOTs has rapidly expanded in the past five years. In general, RWIS technologies are helping states keep their roads safer, and thus are a valuable tool for reducing exposure to certain liabilities. As with any innovation, however, questions have arisen about new legal concerns and risks and how to address them. Four broad areas of liability concerns were identified in this research. All involve scenarios in which a motorist might bring suit against a DOT for damages resulting from a roadway accident.

The identified liability concerns are:

- Dissemination of RWIS information directly to the traveling public, especially online;
- Providing RWIS information to the public indirectly, via a third party such as Clarus or a weather service provider that repackages and redistributes DOT data;
- A DOT’s duty to respond to RWIS information that gives notice of weather-related roadway hazards; and
- Liabilities for not using RWIS technologies when they are expected or indicated.
Legal Context for RWIS-Related Liability

As yet, RWIS-related liability is a largely unexplored question of law, with few relevant precedents. Rather, several legal concepts can provide a context for considering RWIS liability concerns, including tort liability, duties and standards of care, actual and constructive notice, and sovereign immunity.

Tort Liability and Duties and Standards of Care

RWIS can help DOTs avoid a “breach of duty,” without which there is no liability, by helping them meet their legal duties. When a DOT has notice of a dangerous condition, these duties include exercising reasonable care to either alleviate the condition or provide adequate warning to the traveling public. Because RWIS can help a DOT meet these responsibilities—for example, by supporting better informed maintenance decisions, automated road treatments and real-time traveler information—it can thus reduce exposure to certain liabilities.

At the same time, however, some federal and state cases suggest that using RWIS can cause DOTs to assume new duties. Undertaking a new practice or service that affects public safety creates a duty to perform it with reasonable care, especially if reliance upon the service is induced. In Ingham v. U.S., for example, a federal court of appeals held that the Federal Aviation Administration (FAA) had induced reliance on its weather information, and thus was duty-bound to provide accurate and complete information. At least one state—Colorado—defines in statute when a governmental entity can be deemed to have assumed a duty of care where none otherwise existed, but the application of this statute to road weather information issues is unknown.

RWIS might also affect what constitutes a standard of reasonable care for the traditional duties of state DOTs, raising expectations for how DOTs handle dangerous situations. There are earlier decisions in which the lack of advanced RWIS-type technologies was mentioned. In 1982, for example, the Supreme Court of Michigan held the state DOT not negligent because, among other factors, “the technology available at the time of the accident was not advanced to such point as would permit the installation of a flashing sign which would be automatically activated upon the actual appearance of ice on [a] bridge…” Now, however, real-time detection and automated warnings are available.

Actual or Constructive Notice

As another element of the legal context, RWIS can be considered a source of actual or constructive notice. DOTs generally have a duty to correct dangerous conditions of which they have notice, or to provide warning, but RWIS might give a DOT notice of more hazards than it has the resources to address. In cases relating to roadway maintenance, the courts have generally acknowledged the practical limitations of DOTs, including the availability of personnel and equipment, when defining the duty and standard of care. Further, resource allocation decisions are often—but not always—protected from liability as a discretionary, governmental function.
Sovereign Immunity

Federal and state governmental entities such as DOTs can be held liable only for negligent actions under circumstances in which the legal doctrine of sovereign immunity does not protect them. The Federal Tort Claims Act (FTCA) (28 U.S.C. §2674) waives immunity for federal entities, with exceptions where immunity still applies. These include the discretionary function exception—by which immunity still applies to essentially governmental functions that require discretion or judgment, such as planning or policy level decisions that often include resource allocation decisions—and the misrepresentation exception, which protects governmental entities from liability for a failure to provide correct information. Generally, a case will be dismissed without reaching a decision on the merits of the case if one of these exceptions applies.

Claims against federal agencies related to weather information or warnings have generally, but not universally, been resolved in favor of the government due to these exceptions. For example, the National Weather Service (NWS) was protected by the discretionary function exception in Brown v. U.S. in 1986 and by both exceptions in Bergquist v. U.S. in 1994. However, in cases both before and after Brown, both exceptions have failed to protect the FAA from liability for providing inaccurate real-time weather information, even when they were explicitly asserted as a defense.

State statutes that define the limits of sovereign immunity vary, and whether a state entity will be protected depends on the specifics of the relevant statute and how it has been interpreted, as well as the factors in a specific case. Several state tort claims acts include a discretionary function exception (at least 26 states) or misrepresentation exception (at least seven). However, at least one state court—in Connelly v. State of California in 1970, prior to Brown—found that these two exceptions in the state statute did not apply to all weather-related functions.

Regardless, the discretionary function exception will not apply if a policy is violated that “…specifically prescribes a course of action for an employee to follow, because the employee has no rightful option but to adhere to the directive.” Therefore, the NWS has carefully avoided issuing policy directives that require a course of action and thus might take away its employees’ discretion.

Finally, some state statutes specifically define the limits of immunity for weather-related road conditions. Some states, such as Colorado and Massachusetts, allow the state to be held liable for dangerous road conditions, including weather-related conditions. At least 13 states, however, expressly provide some immunity for weather-related road conditions.

Strategies to Address RWIS-Related Liability Concerns

Strategic options to address liability concerns related to RWIS are available to both DOT personnel and state legislators, who can increase their effectiveness by maintaining good communication with each other. These strategies were drawn from survey responses, interviews, the literature and other resources. For both DOTs and legislators, taking these actions not only can reduce RWIS-related liability, but also can maximize the benefits of these innovative technologies for transportation agencies and the traveling public.
Department of Transportation Strategies

Options for DOTs include making careful choices about how they implement, monitor, maintain, fund and use RWIS; what information is shared, how and with whom; and how they address RWIS-related issues with departmental policies, public outreach and risk management programs.

Limits on Information Sharing

Evaluation data indicate that up to 94 percent of drivers who use traveler information Web sites believe that road weather information enhances their safety and prepares them for adverse road weather conditions. At the same time, the direct dissemination of RWIS information to the public was the liability concern most commonly identified in the research for this report and the only concern raised in the survey responses.

One DOT strategy to address information-sharing concerns is to restrict what information is shared, with whom and via what media. The complete RWIS dataset is then primarily—and sometimes solely—accessible to DOT personnel, although access might also be given to other select entities. Twelve survey respondents from 12 states had used this strategy to address liability.

DOTs that do not share all their RWIS data online have generally adopted other approaches to sharing road weather information, such as using RWIS to support manual decisions; using RWIS to issue automated warnings; providing road weather information from other sources; presenting general rather than site-specific information; or a combined approach.

Many DOTs, however, do share at least some detailed sensor data directly with the public. At least 17 states share data online from in-pavement sensors. At least 10 of these also provide other weather-related information online, but on a different Web page than the sensor data. This may help address liability concerns by keeping sensor-specific RWIS data conceptually and visually separate from information meant to be used for travel decisions.

The decisions DOTs make about which road weather information to make publicly accessible, to whom and through which media require careful assessment of which information is most relevant, useful and appropriate to share with the public. Another important consideration is whether other strategies are available to address liability concerns that arise from data dissemination.

Online Disclaimers

After limits on information sharing, the next most commonly described strategy—identified in seven survey responses—was the use of online disclaimers for content provided on a DOT’s public Web site. These are legal statements intended to provide a measure of legal protection by limiting liability for Web site operators. Of the 43 states that share any road weather information online, only seven do not accompany the information with a disclaimer. State DOT disclaimers vary widely in their location, type and content, with a range of possible clauses and provisions. Although disclaimers are considered to be a valuable tool to provide extra protection against liability for information sharing, they represent a kind of contract, and their enforceability and
effectiveness are not guaranteed. Specific concerns exist about disclaimers that are accessible as a link, which may not be noticed by Web site users and for which “mutual assent is marginal at best.” Crafting an appropriate disclaimer is best done with expert legal advice, and since a disclaimer may not provide absolute protection, integration with other strategies may be appropriate.

**Agreements with Third Parties**

A strategy to address concerns about sharing road weather information indirectly with the public is the use of data-sharing agreements that define the allowable uses of RWIS data by third parties and/or describe the limits on DOT liability for such uses. Three approaches are generally taken in these agreements, depending on how the data is accessed and by whom. All are best approached with expert legal advice.

For data that is accessible to the general public online, DOTs may use online terms of use agreements (TOUs) that seek to define the legal relationship between Web site operators and users. These may include “restrictions on use” clauses that limit how a Web site and its contents can be used, or “definitions of rights” clauses that define what material is protected by copyright. Such online agreements also vary widely in their location and content. Of the online agreements reviewed for this report, only Indiana’s and New York’s specifically relate to road weather information.

For information that is made available only to select, known third parties, formal data-sharing agreements may be used. At least nine states currently use data-sharing agreements. These contractual agreements generally give a DOT awareness of and control over which entities are using its RWIS data, and for what purposes. Specific provisions can be used to address liability concerns, such as indemnification clauses, restrictions on use or redistribution of the data, attribution requirements, statements about data ownership or copyright, or a DOT disclaimer statement.

As a third approach, some states have engaged in informal arrangements with parties that have privileged access to RWIS data. For example, Nevada shares its data with the NWS and the Western Regional Climate Center under an informal arrangement that they will not share the information.

**System Optimization**

One of the most important protections against RWIS-related liability is to operate the best possible system—one that functions as intended, is meaningfully integrated into an overall road weather management program, provides accurate and timely information, and for which reasonable care has been demonstrated or exceeded in planning, deployment, maintenance and use. Certain areas of system optimization—including system planning, supporting RWIS use by DOT personnel (e.g., with regular training and user-friendly systems), monitoring and data quality checking, ongoing maintenance, and integrating RWIS with other existing data sources and practices—can particularly address RWIS-related liability concerns.
Executive Summary

**DOT Departmental Policies and Regulations**

A DOT’s approach to its policies can help address RWIS-related liability concerns. For example, detailed, written departmental policies could provide specific guidance to promote appropriate RWIS use, maintenance and monitoring. Having a high level of detail, however, might affect the applicability of a discretionary function exception to a waiver of state sovereign immunity.

**Public Outreach and Education**

Regular public outreach and education activities—particularly relating to driving during adverse weather, DOT maintenance practices and RWIS technologies—also can help address liability concerns by informing travelers about the appropriate uses of RWIS, limitations of the technology, and a DOT’s approach to winter maintenance. Many DOTs use public relations programs or post explanatory statements, winter maintenance policies or winter driving tips on their Web sites.

**Risk Management**

RWIS-related liability concerns can be addressed by an overall DOT risk management program. Risk management for DOTs has been defined as “the identification, measurement and treatment of exposure to potential crashes and tort liability,” with the general goal to minimize both the fiscal impact of tort claims and the human suffering resulting from accidents. Risk management includes several other strategies reviewed in this report, as well as a DOT commitment to a preemptive risk management approach; a comprehensive risk management program; an ongoing, effective relationship with legal counsel; claims management; an accurate, up-to-date database of relevant information; risk transfer; and a review of documentation procedures.

**Ongoing Allocation of Funds**

In the context of a nationwide transportation funding crisis and increasing competition for dollars, states may have difficulty securing ongoing, stable support for RWIS. Ongoing funding, however, is what allows RWIS to continue to meet the needs of the public and DOT personnel for which the investment was first made. In the context of competing priorities, it is important to document and communicate the benefits of RWIS use and maintenance, including financial benefits. These can include increased efficiency and productivity; positive effects on roadway safety; reduced likelihood of litigation; and preemption of costly, responsive maintenance or system-wide upgrades.

Most state DOTs provide RWIS funding from maintenance and operations budgets. Innovative, cost-effective options for financing RWIS also may be available. For example, there may be some potential for public-private partnerships—defined as “relationships for physical assets in which private partners are responsible for life-cycle costs…and for at least partly financing the projects”—for RWIS projects. There is at least one active public-private partnership for RWIS in the United States—in Arizona—and one in Canada.
As another way to save costs, some states—such as Alaska, Iowa and Ohio—have used integrated intelligent transportation system platforms that support both weather and traffic sensing capabilities. Combining both technologies into a single system saves money and allows both traffic and weather observation systems to expand beyond their traditional applications.

**Legislative Strategies**

Legislators also can take actions that may affect states’ exposure to liability—both generally and in relation to RWIS. These options include legislation relating to tort liability, immunity, and appropriations for RWIS investments.

**Legislation Relating to Tort Liability and Immunity**

Legislators can consider several legislative options to reduce liability exposure, including statutes relating to immunity for highway defects and the effects of weather; statutes relating to procedures for filing a claim against the state; or statutes limiting the damages that can be recovered for judgments against the state. In the latter category, at least 33 states have enacted statutory provisions that limit, or “cap,” damages by specifying a maximum dollar amount that can be recovered per individual, per occurrence or per cause of action. These currently range from $50,000 per cause of action in Nevada to $1.5 million per individual in Oregon and $5 million per occurrence in Indiana. In addition, at least 29 states have adopted a provision that prohibits judgments against the state from including punitive or exemplary damages. In the absence of immunity, such provisions can help protect the state and reduce the fiscal impact of tort liability.

**Appropriations**

In most cases, DOTs allocate funding for RWIS from their maintenance and operations budgets based on departmental priorities. Legislators, however, may also play a vital role in ensuring ongoing funding for RWIS, depending on the state and its processes for allocating funds to DOTs. Legislators may be especially important in this respect in states where the legislature approves specific DOT appropriations. Legislators can participate in this strategy by staying informed about and, as appropriate, involved in the process for funding RWIS in their states.
1. INTRODUCTION

Purpose

Road weather information systems (RWIS) are advanced technologies that are used by state and local transportation agencies to measure atmospheric, pavement, and/or water level conditions on or near roadways. Road operators use this information to support a wide range of operations and maintenance decisions that affect safety, mobility and productivity, such as those pertaining to winter road maintenance, traffic management and traveler information.

RWIS has been in development for decades, but its implementation by state departments of transportation (DOTs) has rapidly expanded during the past five years. In general, RWIS technologies are helping states keep their roads safe, and therefore are a valuable tool for reducing exposure to certain liabilities. However, as occurs with any innovation, questions have arisen about new concerns and risks and how to address them.

The purpose of this report is to share information about RWIS-related liability risks and concerns and available strategies to address those concerns. The intent is to support states’ decision-making in how they use and share road weather information and to provide a menu of options for reducing exposure to liability for doing so.

Target Audience

This report is primarily intended for state legislators and state DOT personnel. State legislators will gain familiarity with the advanced RWIS technologies that are available to promote safety, mobility and efficiency on the nation’s roadways, and also will have information about legislative strategies that can be used to reduce state governmental exposure to liability. State DOT personnel who work with RWIS, or are considering doing so, will benefit not only from state-of-the-practice information about nationwide RWIS deployment, but also from information that prepares them to address related liability concerns and risks. Both audiences can benefit from the information shared by experts in other states about their experiences, concerns and strategies.

Other stakeholders who may benefit from this research include:

- Legal advisors to state DOTs, including state attorneys general and DOT legal offices;
- DOT risk management offices;
- Any state, federal or local elected officials who want to learn more about RWIS options;
• Local transportation agencies that use, or are considering using, RWIS technologies;

• Vendors interested in current deployment statistics and concerns about certain uses of RWIS; and

• Members of the general public interested in RWIS and related liability issues.

Methodology

Research for this report included the following.

• **Survey Research.** A survey questionnaire and follow-up questions were sent by e-mail to operations managers in each state DOT, as well as to each state DOT’s legal counsel (either in a DOT-based legal office or in the office of the state attorney general) (see Appendix A). Responses were received from 17 DOT legal advisors and 19 operations managers. The 36 responses represented 32 states and the District of Columbia.

• **Interviews with Experts.** Several transportation, RWIS and legal experts provided additional information on particular topics. These experts were identified through the survey research or by other project stakeholders. Information was provided on the phone, in person and by e-mail. People who shared their expertise include:
  - Arthur Best, University of Denver
  - Brenda Boyce, Mixon/Hill, Inc.
  - Bruce Coltharp, Colorado Department of Transportation
  - Ann Currier, New York State Thruway
  - John Fraundorfer, Pennsylvania Department of Transportation
  - Lynette Goodwin, Noblis
  - Tina Greenfield Huitt, Iowa Department of Transportation
  - Roger Miles, Deputy Attorney General, State of Nevada
  - Richard Nelson, Nevada Department of Transportation
  - Paul Pisano, Federal Highway Administration
  - Jill Sullivan, Alaska Department of Transportation and Public Facilities
  - Glenn Tallia, Office of General Counsel for Atmospheric and Space Services and Research
  - Jon Tarleton, Quixote Transportation Technologies

• **Legislative and Legal Research.** Searches for relevant cases, statutes and recent legislation were conducted using Westlaw, LexisNexis, StateNet, FindLaw, some state-specific online legal resources and the literature.

• **Web Site Scan.** The public Web sites for all 50 states and the District of Columbia were searched for road weather information and related legal statements, including disclaimers.

• **Literature Review.**
Content and Organization

This report first reviews the effects of adverse weather on the nation's roadways, as well as the benefits, costs and current deployment of RWIS technologies. The next chapter describes the four broad RWIS-related liability concerns that were identified in the research. This is followed by a discussion of the legal concepts that provide the context for RWIS-related liability and information about available strategies to address RWIS-related liability concerns. Most of these strategies are already being implemented in the states; wherever possible, examples are given to provide a state-of-the-practice perspective.
2. **Road Weather Information Systems (RWIS)**

This chapter provides an overview of RWIS and its role in promoting safety, mobility and productivity on the nation’s roadways. Information about RWIS technologies, their benefits and costs and their current deployment is provided. The purpose is to familiarize decision makers with RWIS and its implementation in the states and to provide a context for the liability-related discussions that follow. Although the focus is on the use of RWIS by state DOTs, this information may also be of use to local agencies and decision makers.

### The Effects of Weather on the Nation’s Roadways

Every day, weather significantly affects the traveling public and the transportation agencies that operate and maintain the nation’s roadways. Fog, dust, snow, ice, rain, wind and other adverse weather conditions make for slippery roads, reduced visibility, difficult vehicle operation and blocked lanes, detrimentally affecting safety, mobility and productivity.

Weather affects roadway safety by increasing the risk of accidents and exposure to hazards. Recent studies estimate that 24 percent of all crashes and 17 percent of traffic fatalities are weather-related—more than 1.5 million accidents per year result in more than 673,000 injuries and nearly 7,400 fatalities. On average, more than 1,800 people are injured and 20 people die in weather-related crashes every day.9

Adverse weather also dramatically affects mobility. Weather significantly decreases average speeds, traffic flow and capacity on both arterial routes and freeways10 and is the second-largest cause of non-recurring highway congestion, accounting for approximately 15 percent of traffic delays nationwide.11

Reduced speeds and increased traffic delays not only inconvenience individual motorists but also raise costs and decrease productivity for law enforcement personnel, emergency responders and mass transit, as well as businesses and freight operations.12 Weather is estimated to affect about one-third of the nation’s gross domestic product. Trucking companies alone lose an estimated 32.6 billion vehicle hours annually due to weather-related traffic congestion in 281 of the nation’s metropolitan areas; the cost of weather-related delay to trucking companies is between $2.2 billion and $3.5 billion per year.13

Adverse weather conditions also influence productivity and costs for the transportation agencies that operate and maintain roadways. Winter road maintenance accounts for approximately 20 percent of state DOT maintenance budgets.14 State and local transportation agencies spend more than $2.5 billion each year on snow and ice control operations and more than $5 billion to repair weather-damaged roadway infrastructure.15

### Why Road Weather Information Systems (RWIS)?

State and local transportation agencies require accurate, timely and relevant road weather information to effectively and efficiently promote safety, mobility and productivity in the
Road Weather Information Systems (RWIS) face of weather-related challenges. Historically, however, weather observation networks have focused on the atmosphere rather than on the surface where people live and drive. Thus, roadway operators have had to rely on field observations and/or on weather data that were primarily tailored to aviation rather than surface transportation.

During the last few decades, state and local transportation agencies have increasingly used advanced technologies known as road weather information systems (RWIS) in their operations. These systems use specialized equipment—including hardware, software and communications interfaces—to collect, transmit, process and disseminate information specific to road weather, such as icy pavement conditions (Figure 1). While the original purpose of RWIS was to address winter weather hazards in remote locations, its use has expanded to support a broad range of road management decisions in diverse weather conditions and environments.

Figure 1. Road Weather Information System (RWIS) Functions

<table>
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<tr>
<th>Collect</th>
<th>Transmit</th>
<th>Process</th>
<th>Disseminate</th>
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RWIS allows a DOT to “see” the condition of a roadway environment and pavement surface from any location. This supports key road weather management decisions, such as those pertaining to winter road maintenance, traffic management and traveler information. RWIS provides access to an unprecedented amount and variety of near real-time observations that are used in coordination with forecast information to help mitigate the negative effects of adverse weather on surface transportation. This information can also be integrated with other available data sources such as the National Weather Service (NWS) and field observations.

How RWIS Works

The three main elements of RWIS are 1) sensors that collect data, 2) processing systems that translate the data into usable formats, and 3) systems that display or disseminate the information.

The environmental sensor station (ESS) is the primary RWIS field component that collects relevant road weather observations. An ESS can be a permanent, portable or mobile station that generally is placed along the roadway and is equipped with one or more sensors that detect and measure observations (Figure 2).
The three most common types of information gathered by these stations are:

- Atmospheric data (e.g., wind speed and direction, dew point, precipitation type and rate, barometric pressure, air temperature, relative humidity and visibility);

- Pavement data (e.g., surface and subsurface temperatures, pavement status such as “wet,” “dry” or “icy,” and chemical concentration); and

- Hydrologic data (e.g., water levels).

An ESS also can incorporate a closed-circuit television (CCTV) camera that allows a user to assess visibility and precipitation information in addition to traffic data. An attached computer component called a remote processing unit collects and processes data from the sensors.

Each ESS can be operated independently to produce site-specific data only, but they are typically deployed as field components of an integrated RWIS. These stations also can be used for other applications such as traffic management, flood monitoring and aviation. Figure 3 illustrates some operational applications of environmental sensor stations.

In an integrated RWIS, central hardware and software collect and process observation data from numerous environmental sensor stations. This data is used to produce detailed, location-specific, roadway-relevant weather observations and forecasts. Data from other observing system technologies also can be incorporated into an RWIS. These technologies include mobile sensing, which integrates environmental sensors into vehicle systems (i.e., vehicle probes), and remote sensors such as satellites and radar systems.

Using RWIS to Support Road Weather Management Strategies

RWIS-generated road weather observations, along with forecasts, can support a range of road weather management activities that can be categorized into advisory, control and treatment strategies.

- Advisory strategies share information with travelers about roadway weather conditions and forecasts through a range of media, including DOT Web sites, highway advisory radio, roadside warning devices such as variable message signs and interactive 511 phone and Web-based services.

- Control strategies regulate traffic flow and roadway capacity, for example through lane or road closures, weather-related signal timing, vehicle restrictions or variable speed limits.

- Treatment strategies aim to keep the roads clear using snow and ice control operations, road treatment and anti-icing strategies.
Some road weather management strategies—including anti-icing treatments, warning systems and real-time information sharing—can be automated. In most cases, RWIS information is a resource for DOT personnel as they make road weather management decisions. Some RWIS provide automatic messaging to roadway maintenance personnel via wireless communications, thereby alerting them to hazardous road conditions.

RWIS data also can be integrated into decision-making tools that support treatment strategies. For example, Maintenance Decision Support System software integrates weather and road surface data with maintenance procedures and resource information to provide managers with recommended road treatment strategies. A national consortium sponsored by FHWA began developing the system in 1999; as of 2009, 24 state DOTs were using or developing some form of this software. Next steps include expanding the scope of this tool to support non-winter weather-related decisions, such as those for summer maintenance and construction.

**Benefits and Costs of RWIS**

Although at least half the states have reported cost as one barrier to implementing or obtaining RWIS components, all current studies indicate that the benefits of RWIS far outweigh its costs. The typical capital cost of RWIS averages between $27,000 and $45,000 per environmental sensor station site, plus installation costs; ongoing maintenance costs have been estimated at $3,000 per site per year, with approximately $600 more per site per year for data communication. In practice, state DOTs report annual RWIS maintenance budgets of between $1,040 and $6,300 per ESS site; some of these budgets include system upgrades.

Studies to date indicate benefit-cost ratios for RWIS of between 2:1 to 10:1. RWIS benefits include significantly reduced costs and increased productivity for DOTs. Detailed, location-specific road weather forecasts can help DOTs plan their weather responses and maintenance strategies to control costs by supporting improvements in staff planning and scheduling and more efficient use of road treatment chemicals. In Utah, for example, using RWIS-supported forecasts saved $2.2 million per year in labor and material costs for snow and ice control activities—18 percent of the annual winter maintenance budget—for an estimated benefit-to-cost ratio of 10:1. Having RWIS as an additional source for accurate, relevant road weather information also can relieve personnel of labor-intensive field reporting procedures, which further increases DOT productivity.

The use of RWIS also provides public safety benefits. In Idaho, in addition to reducing labor hours by 62 percent and material costs by 83 percent, using RWIS-supported anti-icing strategies also reduced crashes by 83 percent. In Minnesota, an automated de-icing system reduced winter crashes by 68 percent, and in Tennessee, an RWIS-based fog-detection and warning system on I-75 decreased fog-related crashes from more than 200 between 1973 and 1994 to only one in the nine years after the system was implemented. Such systems can also reduce the rate of secondary crashes and improve mobility by addressing incident-related delays.

A recent report detailed the benefits and costs of various ITS applications, including RWIS and other road weather management technologies; it is available from the U.S. Department of Transportation.
Current Use of RWIS by State Departments of Transportation

The current use of ESS and RWIS technologies by state DOTs is widespread. As of 2008, state DOTs owned more than 2,000 ESSs nationwide (Figure 4), in addition to RWIS owned by metropolitan areas that can share data with state systems.42 Although states own the ESSs, as of 2004, at least 22 states were using private vendors for ESS data collection or RWIS network operation or maintenance.43

As of 2009, at least 44 states and the District of Columbia reported using an integrated RWIS (Figure 5). Hawaii and New Mexico reportedly have no RWIS but do own ESSs.45 The Oklahoma DOT uses an RWIS operated by the Oklahoma Climatological Survey and had seven DOT-owned ESSs as of 2008.46 Arkansas had RWIS in development and had planned to deploy the system by the end of November 2009, but the current status of this project is unknown.47 The Texas DOT owns 50 ESSs which are used by the DOT districts; at one time, these were planned to be integrated into a
statewide system, but the status of this project also is unknown. Only Mississippi has no sensors and no RWIS.

Although RWIS is especially useful in addressing ice and snow, it also provides support for strategies to address fog, dust, smoke, landslides, rain, severe storms and other adverse weather conditions. As of 2004, all but one of the states that owned ESSs used them year-round; South Carolina, where the ESSs were used only in winter, was the exception. However, sensor deployment covers only 46 percent of the nation’s urban areas, with even sparser distribution in rural areas, and deployment depends on each state’s circumstances and budget.

Still, the states’ use of sensor and RWIS technologies is growing. A comparison of a 2004 U.S. Department of Transportation state survey and a 2008 Noblis report indicates that at least 43 states and the District of Columbia increased the number of DOT-owned ESSs during that four-year span. In 2004, 12 states owned no ESSs; by 2008, that number had fallen to one.

States are collecting and processing a range of road weather information, including atmospheric, pavement and hydrologic data. As of 2007, 33 state DOTs reported using in-pavement sensors as part of their RWIS program. DOTs also gather road weather information using other technologies, including agricultural monitoring networks, air quality sensing stations, airport monitoring stations, closed-circuit television (CCTV) cameras and state-owned mesoscale environmental monitoring networks (mesonets). In addition, by 2004, at least 15 states had used or were using vehicle-based mobile sensors. Road weather data also is integrated with information from the NWS, the Federal Aviation Administration (FAA), private weather information services, field observations and RWIS in other jurisdictions.

State DOTs currently use RWIS for diverse road weather management strategies, and various DOT departments—including traffic management, traveler information dissemination, maintenance and construction—use RWIS technologies. Survey responses for this report indicated the primary RWIS applications are to support planning, winter maintenance, emergency responses, and traveler updates and warnings. As of 2007, at least five DOTs—Alabama, Delaware, Maine, Virginia and Washington—reported using variable speed limits in response to weather conditions, while four—Connecticut, Delaware, Hawaii and Utah—had implemented weather-responsive signal timing. At least 15 DOTs were using sensor technologies to implement temporary weather-related vehicle restrictions, such as road closures to high-profile vehicles and snow tire or chain requirements, and 20 had automatic bridge anti-icing systems.

Information that state DOTs share directly with the traveling public includes atmospheric observations and pavement condition data generated by RWIS sensors, closed-circuit television (CCTV) images, road condition information, weather-related travel restrictions and weather forecast data. Several media are used to disseminate the information, including DOT Web sites, highway advisory radio, roadside warning devices such as variable message signs, and interactive phone and Web-based 511 services. At the time of writing, at least 43 state DOTs share on their public Web sites some form of road weather information that is drawn from RWIS and other sources. Of those states, 17 share data generated by their in-pavement sensors online (see page 32 and Appendix D).
State DOTs share road weather information with other audiences besides DOT personnel and the public. As of 2004, at least 24 were sharing ESS observational data with the NWS, private meteorological services or the National Oceanic and Atmospheric Administration Meteorological Assimilation Data Ingest System. DOTs also were sharing information with emergency management and public safety agencies, transit operators, information service providers, commercial vehicle operators, school districts, data archiving agencies, traffic management centers, media companies, tourism boards, local agencies and other states. As discussed in Chapter 5, data shared with such entities often is not accessible to the general public, and the arrangements can be subject to data-sharing agreements.

**Nationwide RWIS Data-Sharing: The *Clarus* Initiative**

Most state DOTs now share a good deal of their RWIS data with a broad audience—and across state boundaries—via the *Clarus* Initiative, a research and development program established in 2004 by the FHWA Road Weather Management Program and the U.S. Department of Transportation Intelligent Transportation Systems Joint Program Office. The goal of *Clarus* is to reduce the effects of adverse weather conditions by creating a North American integrated weather observation and data management system to collect and quality check road weather information and make that information available “anytime, anywhere” to all transportation users and operators. State DOTs and other public agencies provide RWIS data to *Clarus*, which integrates it into a single interface. As of Aug. 31, 2009, 33 state DOTs and three local transportation agencies were connected to *Clarus* (Figure 6). The *Clarus* System currently is accessible at www.clarus-system.com.
3. RWIS-Related Liability Concerns

Through RWIS, unprecedented amounts and varieties of weather information are now being collected, managed and shared by state and local transportation agencies. That information is a critical resource for making important operations and maintenance decisions. Transportation agencies are also sharing that information with other governmental entities, private companies and the public at large. Through Clarus, many states are sharing at least some of their RWIS data with a wide variety of transportation users and managers nationwide.

RWIS is a valuable tool that demonstrably helps DOTs in their efforts to reduce accidents and promote roadway safety and mobility. As such, it can help departments avoid certain liabilities. As with any innovation, however, RWIS development has brought up new legal questions.

This chapter identifies four possible RWIS-related liability concerns. One was identified in survey research responses, two others in interviews with RWIS and legal experts, and the fourth was drawn from the literature. All the concerns involve scenarios in which a motorist might bring suit against a DOT for damages resulting from a roadway accident. Relevant legal issues and strategies for addressing each concern are explored in chapters 4 and 5.

Direct Dissemination of RWIS Information to the Traveling Public

The survey for this report asked participants to identify their liability concerns related to using or sharing road weather information (Appendix A). More than half the responses (19 of 36, representing 18 states) identified no concerns. The remaining responses identified only one area of concern: liabilities related to disseminating RWIS information directly to the traveling public. Many respondents specifically identified concerns about posting pavement condition data on public Web sites.

Respondents described several possible scenarios that might give rise to claims in this area. For example, a DOT might actually provide misinformation. The data might be inaccurate or untimely due to equipment malfunctions or actions of DOT personnel, or because system updates occurred too infrequently to reflect rapidly changing weather conditions.

In another scenario, a DOT might provide information to the public that was accurate but misleading or misinterpreted by travelers. For example, a pavement sensor can only sample an

Throughout this report, this concern is cross-referenced as “DIRECT DISSEMINATION.”

This chapter describes four possible RWIS-related liability concerns: direct dissemination of RWIS information to the traveling public, indirect dissemination of RWIS information through third parties, a DOT’s duty to respond to RWIS information that gives notice of weather-related roadway hazards, and liabilities for not using RWIS when it is expected or indicated. The purpose is to introduce decision-makers to key liability concerns identified by legal and transportation experts. These concerns serve as a focal point for the broader legal context and menu of strategic options described in chapters 4 and 5.
area six to 10 inches in diameter, but a motorist might misinterpret sensor data as representative of the entire roadway. A motorist also might misinterpret real-time data as a weather forecast.

Alternatively, a traveler might make assumptions about DOT maintenance responses based on road weather information. For example, pavement sensor data might indicate “dry” during a winter snowstorm, which a motorist might misinterpret to mean that the road already was plowed or treated, when, in fact, the information might be localized or not indicative of changing conditions.

In any of these cases, a motorist might claim that false, untimely or misleading information from the DOT—upon which they had relied—at least partially caused an accident and resulting damages.

Relevant concepts and cases concern tort liability and immunity for state DOTs, especially in regard to dissemination of weather-related information and to DOTs’ duties to the public. These issues are reviewed in depth in Chapter 4. As described in Chapter 5, DOTs have addressed this concern with limits on information sharing, online disclaimers, public outreach and education, and system optimization. In addition, as for all the concerns listed here, DOT departmental policies and regulations, risk management, ongoing allocation of funds and various legislative strategies also can provide some general protections.

**Indirect Dissemination of RWIS Information: Third-Party Issues**

The second concern was identified in an interview as one that state DOTs had raised in connection to Clarus. It is similar to the first in that it also relates to a potential suit brought against a DOT by a motorist who had relied upon RWIS information that contributed to an accident.

In scenarios for this concern, however, the information is not acquired by motorists directly from the DOT, but indirectly via a third party—for example, from a collaborative project such as Clarus or a weather service provider that repackages DOT RWIS data and then shares it with the public. The third party might attribute the information to the DOT but not protect its accuracy and timeliness, or fail to include relevant DOT disclaimers or cautionary statements.

As discussed in Chapter 5, DOTs have addressed this concern with limits on information sharing and agreements with third parties. The Clarus project has also used limits on information sharing and links to participating DOTs’ online disclaimers. As with the other concerns, DOT departmental policies and regulations, risk management, ongoing allocation of funds and legislative strategies also may provide some general protections.

**DOT Responses to RWIS Information: Actual or Constructive Notice**

The third concern was raised in individual interviews with legal, transportation and RWIS experts. The concern is that RWIS data might act as actual or constructive notice of dangerous conditions or be used as evidence of notice, which would then be regarded as having required a DOT response.
A review of the concepts of actual and constructive notice is provided in Chapter 4 on pages 20 to 21. Briefly stated, if it can be demonstrated that a DOT actually knew about a dangerous condition (actual notice) or should have known about a dangerous condition if it was being reasonably attentive (constructive notice), the DOT has a duty to respond by correcting the condition or adequately warning travelers within a reasonable amount of time.

The main concern here, then, is that RWIS could give a DOT access to information about a weather-related road hazard that would place it under a duty to take action. However, the DOT might not take such action—for example, because the number of dangerous conditions exceeded the DOT’s available resources with which to respond. This might give rise to a claim that an inadequate DOT response to RWIS information contributed to an accident.

Two ancillary scenarios related to actual and constructive notice overlap slightly with direct dissemination in that they involve sharing information with the public. The first is that access to DOT RWIS data might make the public aware of when a DOT had notice of a given condition and unrealistically raise expectations or encourage false assumptions about DOT maintenance activities. For example, if a DOT RWIS Web site showed a road was snow-covered, a motorist might anticipate immediate snow removal there, whereas actual DOT priorities and responses might differ. This discrepancy might increase the likelihood of claims.

The other scenario also involves information sharing, in that publicly available RWIS information might be used as evidence of notice in a maintenance-related case. For example, a plaintiff might use archived data in an effort to prove that a DOT had access to information about a hazardous condition but did not adequately treat the condition or warn travelers about it.

In all these scenarios, the key issue would be allegedly inadequate DOT roadway maintenance. Relevant concepts and statutes related to roadway maintenance, particularly snow and ice control, are presented in Chapter 4 (see pages 16 and 28 to 29).

DOTs have addressed this concern with limits on information sharing, online disclaimers, public outreach and education, and system optimization. As with the other concerns, general protections also may be provided through DOT departmental policies and regulations, risk management, ongoing allocation of funds and legislative strategies.

**Liability for Not Using RWIS**

The fourth concern was drawn from the literature review and an interview with an expert. It involves possible liability risks associated with failing to use RWIS, especially in situations where an application is expected or indicated or no other viable or effective option exists. Such a concern could involve any RWIS-enabled service that provides public safety benefits, such as automatic road or bridge de-icing treatments, RWIS-supported maintenance decision systems, real-time travel advisories or hazard warning systems.

Several possible scenarios relate to this concern. In any of these scenarios, it might be claimed that the DOT failed to take reasonable precautions to protect public safety.
The first is that the DOT might never have used an RWIS technology that could address a known, recurring roadway hazard that then contributed to an accident. This might especially be an issue if it was standard practice in other states to use that technology to address similar concerns (see also page 20). As a second scenario, a DOT could fail to address a specific hazard with a technology that it had used in similar situations.

Third, a DOT could fail to address a specific situation with RWIS, even though RWIS had been used previously to address the same condition in the same location. This might be due to equipment malfunctions, system degradation due to poor maintenance and calibration, or because DOT personnel were not consistently and appropriately using available technologies. In such a case, a motorist might be relying upon RWIS to function as it had previously.

The final scenario relates to DOT RESPONSE TO NOTICE in that RWIS might fail—due to system malfunctions, degradation or misuse—to provide a DOT with information that it would be reasonably expected to have about a dangerous condition.

Legal concepts relating to this area of concern include reasonable care (see page 16), the assumption of duties (see pages 16, 17 and 19), the discretionary function exception to waivers of state sovereign immunity (see pages 23 to 27) and actual and constructive notice (see pages 20 to 21). DOTs have addressed this concern with system optimization, public outreach and education, and—when the upkeep of online road weather information is an issue—online disclaimers. As with the other concerns, DOT departmental policies and regulations, risk management, ongoing allocation of funds and legislative strategies also may provide general protections.
4. Legal Context for RWIS-Related Liability

As yet, RWIS-related liability is a largely unexplored question of law. Research for this report revealed only two cases with any mention of RWIS: one in Nevada, described in detail on page 18, and one in Pennsylvania about which very little information could be found. At most, a few older cases provide some interesting hints about issues related to RWIS-like technologies (see page 20). The scarcity of RWIS-related cases is not surprising, given that it can take many decades for the law to adapt to changes in technology. This discussion thus is limited to reflections on the possible relevance of certain concepts to RWIS-specific concerns, rather than their known applicability.

The multidisciplinary nature of RWIS also defines the scope of this discussion. RWIS creates a conceptual and practical space where the worlds of weather service provision and transportation operations meet. Legal issues from both worlds therefore may provide some insight, so both are reviewed here. Liability issues related to DOTs do not always completely correspond with those to do with weather services, however. For example, the duties of public sector weather forecasters to provide severe weather warnings are governed by different precedents than the duties of DOTs to warn the public of known, dangerous roadway conditions. This is another reason the applicability of these issues to RWIS-specific concerns is a question for the courts and will depend on the facts and circumstances of a given case.

Finally, only issues related to the public sector are reviewed here. The few cases that have involved claims against private weather forecasters have relied upon principles external to state DOT concerns, such as the First Amendment rights of mass media broadcasters and the business of providing forecasts to commercial clients.

**Tort Liability**

This section reviews concepts related to tort liability such as duties, standards of care, and actual and constructive notice. It also discusses the possible relevance of these concepts to RWIS-related concerns, with reference to the survey and interview research for this report and to statutory and case law.

**Overview of Tort Liability and Related Concepts**

Concerns about DOT use of RWIS relate to possible tort liability regarding using and sharing road weather information. Liability for unintentional torts (negligence) is especially relevant. Tort law relates to civil wrongs or injuries and the process of collecting monetary damages for
such injuries through litigation. For there to be a tort, there must be a wrongful act in the sense that a duty was breached, which was a cause of damages. The demonstration of a duty is critical, as “[w]ithout duty, there can be no breach of duty, and without breach of duty, there can be no liability.”

A breach of duty occurs when conduct fails to meet a required minimum “standard of care,” or degree of caution. For DOTs, the standard is generally “reasonable care,” or the care a reasonable, prudent person would take under similar circumstances. Therefore, the duty of a DOT is to have reasonable care and foresight in designing, constructing and maintaining highways in a reasonably safe condition for their intended purpose. The general principle is that, “[t]he state is required only to exercise reasonable care to make and keep the roads in a reasonably safe condition for the reasonably prudent traveler.”

In cases where a DOT has notice of a dangerous condition (see pages 20 to 21), its duty is to exercise reasonable care by either correcting the condition or by providing adequate warning to the traveling public. A DOT may especially be held liable if it has had the time and the ability to address a hazard but has not done so, or has done so negligently; for example, by treating a condition in a way that leaves it still dangerous.

Because inclement weather is a naturally occurring event, the effects of weather on roadway conditions do not necessarily expose a DOT to liability. Some courts have interpreted the function of maintaining the roads in a reasonably safe condition to include removal of all snow and ice hazards, whereas others have not. Many DOTs have followed a general rule that:

There is no duty, in the absence of a statute, to remove general accumulations of ice and snow from the streets and highways, except when a public entity has notice, either actual or constructive [see pages 20 to 21], of a dangerous or hazardous condition caused by snow and ice on the highway. In such a situation, the state has a duty to exercise reasonable care, either to alleviate the hazard or to give warning of it.

In practice, what constitutes reasonable care or reasonable safety depends on the specifics of a given case. Determining a duty and standard of care for roadway maintenance, for example, involves several factors, such as whether the state knew about the condition, the length of time the dangerous condition had existed, the availability of personnel and equipment, and traffic conditions.

The Role of RWIS in Reducing Exposure to Liability

The use of RWIS helps state DOTs better meet their traditional duties to maintain reasonably safe roads and to warn travelers about dangerous conditions. It thereby reduces accidents and resulting injuries. Thus, RWIS can generally be thought of as a way to reduce exposure to liability. This critical point gives needed balance to the new legal questions addressed in this report.

Accurate, timely and relevant road weather information helps DOTs perform their duty to keep the roads in a reasonably safe condition by:
• Supporting better informed decisions about treatment strategies that mitigate weather-related hazards (e.g., snow and ice control operations, chemical and salt applications, and anti-icing strategies);

• Enabling immediate, automated treatments (e.g., bridge de-icing applications);

• Informing control strategies (e.g., lane closures and vehicle restrictions);

• Providing immediate information to DOT personnel about dangerous conditions; and/or

• Disseminating warnings to the traveling public in real-time (e.g., through roadside devices such as variable message signs).

These benefits of RWIS in helping DOTs avoid exposure to certain liabilities provide a context in which to consider RWIS-related concerns.

Undertaking New RWIS-Related Duties

Although RWIS can help state DOTs meet their existing duties, its use may also cause them to assume new duties. Undertaking a new practice or service that affects public safety creates a duty to perform it with reasonable care, especially if reliance upon it is induced.87

In the second Restatement of Torts (§323, 1965), this principle is stated as:

One who undertakes, gratuitously or for consideration, to render services to another which he should recognize as necessary for the protection of the other's person or things, is subject to liability to the other for physical harm resulting from his failure to exercise reasonable care to perform his undertaking, if:

a) his failure to exercise such care increases the risk of such harm, or

b) the harm is suffered because of the other's reliance upon the undertaking.

This has been relevant to weather-related claims against the FAA. In Ingham v. U.S. (see also pages 25 and 27), the U.S. Second District Court of Appeals held that the FAA had induced reliance on its weather condition information, and thus was duty-bound to provide accurate and complete information. The court asserted, “[I]t is…well-established that when the government undertakes to perform services, which in the absence of specific legislation would not be required, it will, nevertheless, be liable if these activities are performed negligently.”88

If a DOT were to assume a duty to provide a new RWIS-related service—for example, an active warning system or automated roadway maintenance—reasonable care might include continued and consistent use of that service, or adequate equipment maintenance, especially if reliance on the service had been induced. Liability might result if the service were then discontinued or provided negligently. This risk was identified under LACK OF RWIS (pages 13 to 14), relating to failures to provide RWIS in situations where it might reasonably be expected or had been provided previously. Whether reliance on a service is induced—or conversely, discouraged—can be an important factor, and is addressed further throughout this report (see pages 34 to 35, 42 and 45).
Nevada: The Case of the Foggy Valley

Although the research for this report revealed almost no RWIS-specific legal cases, one Nevada case was reported in both the survey and interview research. This case was settled out of court, so there is no published decision. Nevertheless, the case offers some interesting insights into RWIS-related liability issues.

In the mid-1990s, the Nevada DOT was developing an automated warning system on a fog- and ice-prone segment of Interstate 80 east of Reno. The system was designed to automatically activate variable speed limits under adverse weather conditions and also flash amber lights on signs that read, “Reduce Speed When Flashing.” Activation was controlled by three sensor-monitored elements: visibility, pavement conditions and traffic speeds.

A requirement of Nevada’s RWIS program is that there must be a 60-day no-fault operation period before a system goes “live”—especially on automatic systems. If there is a fault, the review period starts over. In this case, the system had not successfully completed the review period without incident, so it was not yet deployed for use; the flashing lights and variable speed limit systems were covered in burlap. The written “Reduce Speed When Flashing” signs, however, were still visible and facing traffic. One morning in December 1998, ice covered the highway and a multi-vehicle accident resulted in a child’s death. A wrongful death action was brought against the DOT, a nearby power plant and the RWIS vendor.

This case may relate to two issues identified elsewhere in this report. First, one DOT official recalls that one of the plaintiffs’ concerns was that the DOT had the technology to warn the public about a known hazard and “should have given [the public] the benefit of that technology, even if it was being tested.” This relates to liability concerns about failures to use RWIS when it is indicated or available (Lack of RWIS on pages 13 to 14).

Second, according to the attorney who represented the DOT, the plaintiff’s legal position was that the visible “Reduce Speed When Flashing” sign presented the system as operational and thus created an expectation that the warning would be given if the road were unsafe. With the flashing lights covered, however, no such warning could be provided. Therefore, it was argued that the DOT had induced reliance on a service that affected public safety, then did not provide that service (see also pages 17 and 19). The DOT position was that there could be no reasonable reliance on a system that was not yet fully operational nor deployed for use. The case was settled out of court.

Today, the Nevada DOT operates other automated warning systems, but that stretch of Interstate 80 has only written signs that read “Fog: May be Icy” and an RWIS sensor site that alerts the DOT to ice so maintenance crews can be immediately dispatched.

Sources: National Conference of State Legislatures, Survey Data.; Richard Nelson, Nevada DOT, telephone conversation with author, July 1, 2009; Roger Miles, Nevada Deputy Attorney General, e-mail messages to author, Sept. 11, 2009, Sept. 30, 2009, and Oct. 8, 2009; these sources are not in agreement on the details of this case.
In a relevant case example, the Nevada DOT adopted a new automated system that indicated RWIS-informed warnings would be provided in case of dangerous weather conditions. The DOT was held liable when those warnings then were not provided (see page 18).

Several new services are enabled by RWIS—including automated de-icing treatments and active warning systems—that might lead to new duties of care. Sharing road weather information directly with the public—especially online—is one new service that has raised liability concerns for both legal experts and DOT personnel (see DIRECT DISSEMINATION on pages 11 to 12). In the survey research for this report, one DOT attorney expressed a concern that, “if...[road weather] information is not properly and timely updated, the [DOT] may have assumed a duty with regard to providing that information. Once a duty is assumed, it must be carried out reasonably.” Strategies that address these concerns include limits on information sharing, online disclaimers, and public outreach and education (see pages 30 to 33, 33 to 36, and 45).

As an interesting side note, liability concerns related to the assumption of new duties may not be equally relevant in all contexts. At least one state—Colorado—defines in statute when a governmental entity can be deemed to have assumed a duty of care:

In order to encourage the provision of services to protect the public health and safety and to allow public entities to allocate their limited fiscal resources, a public entity or public employee shall not be deemed to have assumed a duty of care where none otherwise existed by the performance of a service or an act of assistance for the benefit of any person. The adoption of a policy or a regulation to protect any person’s health or safety shall not give rise to a duty of care on the part of a public entity or public employee where none otherwise existed. In addition, the enforcement of or failure to enforce any such policy or regulation or the mere fact that an inspection was conducted in the course of enforcing such policy or regulation shall not give rise to a duty of care where none otherwise existed; however, in a situation in which sovereign immunity has been waived in accordance with the provisions of this article, nothing shall be deemed to foreclose the assumption of a duty of care by a public entity or public employee when the public entity or public employee requires any person to perform any act as the result of such an inspection or as the result of the application of such policy or regulation. Nothing in this section shall be construed to relieve a public entity of a duty of care expressly imposed under other statutory provision.

Application of this statute to RWIS-related activities is unknown, however—especially since the statute also provides that governmental entities may be held liable for injuries resulting from known dangerous conditions, including those related to snow and ice.

**RWIS as Potentially Raising Standards**

The existence of RWIS technologies might affect what constitutes a standard of reasonable care with respect to the traditional duties of state DOTs. Given that RWIS enables new services that can correct dangerous conditions or provide immediate warning to the public, there may be liability issues related to the failure to provide such services in situations where they are indicated. In this way, RWIS may raise expectations for how DOTs handle dangerous conditions. Such issues are also discussed under LACK OF RWIS on pages 13 to 14.
Some suggestions in this regard are given in older cases in which the court decision mentioned the lack of advanced RWIS-type technologies. In 1982, for example, the Michigan Supreme Court held the state DOT not negligent in the case of an accident on an icy bridge because, among other things, “the technology available at the time of the accident was not advanced to such point as would permit the installation of a flashing sign which would be automatically activated upon the actual appearance of ice on the bridge, and hence, the [Watch for Ice on Bridge] signing involved fully met and satisfied the technology available at the time.”91 In an earlier case, the court stated with respect to preferential icing on bridges that, “short of full-time human surveillance of the bridge from early fall to late spring, there is no assured method for immediate detection of this condition… [T]he Highway Department cannot be held to so stringent a standard.”92 Now, however, both real-time detection and automated warning technologies are available.

These cases can be distinguished from later cases in which RWIS technologies were available but not used. For example, failure to use existing systems to address a known, dangerous condition seems to have been a factor in the Nevada case discussed on page 18.93

The question then becomes whether reasonable precautions in meeting the traditional duties to correct or warn of dangerous roadway conditions could be interpreted to include use and upkeep of RWIS technologies when they are available to address a known, recurring hazard. This might especially be an issue if a DOT had previously deployed an RWIS technology in similar situations,94 if no other effective response were available, or if RWIS could be regarded as standard practice in other states.

In the interview research for this report, for example, a DOT official recalled a California case in which the plaintiff argued that the state DOT should have used anti-icing applications on a known hazard because anti-icing was “standard [practice] in the United States.” In reality, however, it was questionable whether anti-icing was truly as widespread as commonly thought95 (see also page 14). A similar argument might also be applied someday to an RWIS-related technology or practice.

**RWIS and Actual and Constructive Notice**

To prove negligence on the part of a DOT in relation to its duties to correct or warn of dangerous highway conditions, it generally is necessary to demonstrate that a dangerous condition existed and that the DOT had notice of it. Actual notice—meaning that the DOT was demonstrably made aware of the condition—is not always required. In some cases, constructive notice—meaning the DOT, if it had been reasonably attentive, would have known about the condition—is sufficient.96

As described under D OT R E S P O N S E T O N O T I C E on pages 12 to 13, the concept of notice is relevant to RWIS-related liability. RWIS, in combination with other data collection methods, provides DOT personnel with continual access to an unprecedented amount of real-time, statewide data about weather-related roadway hazards. As discussed above, this is best thought of as a valuable way to reduce exposure to liability, because it helps DOTs fulfill their duties and increase roadway safety.
At the same time, RWIS also can be considered as a source of actual or constructive notice, and when a DOT has notice of a known, dangerous condition, it generally has a duty to correct the condition or provide adequate warning. This concern was expressed in the expert interviews for this report. RWIS now enables DOTs to have notice of numerous roadway hazards simultaneously and, inevitably, a DOT will have notice of more hazards than it has resources to address. In addition, making the information publicly accessible might raise public expectations about DOT maintenance responses (see pages 12 and 13).

Although the sheer amount of data may be new, the issue of balancing notice of weather-related hazards with a DOT’s limited ability to correct them is not. In cases relating to roadway maintenance, courts have generally acknowledged the practical limitations of DOTs—such as the availability of personnel and equipment—when defining the duty and standard of care. In the context of snow and ice removal,

Because it would be unduly burdensome to require transportation departments to maintain the roads free of ice at all times, courts generally do not compel them to do the impossible… Older cases held that the law did not require what was unreasonable, nor did it condemn an act or omission as negligent that could only be done or prevented only by extraordinary exertion or by the expenditure of extraordinary sums of money.

precedents also exist that hold DOTs are necessarily exercising their discretion—and therefore are protected from liability—when making decisions about allocating resources such as funds, personnel or equipment—as long as the decision was deliberate, demonstrated legitimate prioritization, and financial feasibility was not the sole determining factor. There are exceptions to this rule, however (see page 26 for further discussion).

A few other concerns about actual and constructive notice were identified in research for this report. One DOT attorney expressed concern that a motorist might be able to prove actual or constructive notice by demonstrating that information about a dangerous condition was publicly accessible, and therefore also available to DOT personnel (see also DOT RESPONSE TO NOTICE on page 13). This evidentiary issue, which may be of particular interest to DOT legal counsel, has been addressed in practice by placing limits on information sharing (see pages 30 to 33).

Another consideration, touched upon under LACK OF RWIS on pages 13 to 14, is that a DOT might rely on RWIS to provide actual notice of dangerous conditions, but system malfunctions or limitations might keep key data from getting through to DOT personnel. In such a case, the DOT might then be considered to have had constructive notice of a hazard due to the existence of the RWIS, but no actual data to inform its actions. One strategy to address this concern is system optimization (see pages 39 to 44).

Sovereign Immunity

State governmental entities such as DOTs can be held liable for negligent actions only in circumstances where the legal doctrine of sovereign immunity does not protect them. For most of American history, sovereign immunity protected federal and state governments and their employees from being sued without their consent. Even when suit could be brought against
them, they were immune from being held liable for their actions except when they chose to waive that immunity.100 Many state constitutions reiterated the doctrine of sovereign immunity or established the authority of the legislature to decide how and when the state could be sued101 (see Appendix B). In practice, immunity almost universally protected governments and their agencies—including state transportation agencies—from liability.

Starting in the mid-20th century, however, a trend toward government accountability began to erode sovereign immunity. In 1946, the federal government passed the Federal Tort Claims Act (FTCA) (28 U.S.C. §2674), waiving immunity to suit and to liability for some actions. States gradually followed the federal example, and many state legislatures enacted statutes—often in response to state court decisions—to define the limits of immunity for state government entities and employees.102

**State Waivers of Sovereign Immunity**

Today, state tort claims acts modeled after the FTCA are the most prevalent statutory waiver allowing tort claims against the state.103 These acts can be broadly categorized as 1) “open-ended” statutes that provide a general waiver of immunity with certain exceptions where it still provides protection, or 2) “closed-ended” statutes that reenact immunity with limited waivers that apply only to certain kinds of claims.104

Following the FTCA model, state tort claims acts describe the circumstances in which immunity provides protection for government entities and employees, and those where it does not. As with the federal law, other common provisions in state tort claims acts include procedures for giving pre-action notice of a tort claim against the state, a limitations period for filing a notice of claim or action in court, permission for state entities to purchase liability insurance or self-insure, and clarification of the personal tort liability of government officers and employees.105

State claims acts (as opposed to tort claims acts) are another kind of statute that limit immunity and establish a procedure for claims against the state. These acts establish a special court of claims, board or commission to determine such claims, and also may limit damages or provide for certain exceptions to liability.106 Connecticut, Illinois, Kentucky, North Carolina and Ohio use this approach.

At least 33 states’ acts limit, or “cap,” the monetary amount for damages that may be recovered from judgments against the state.107 At least 29 states have adopted another kind of provision—frequently in combination with a statutory cap on damages—that prohibits a judgment against the state from including punitive or exemplary damages. Both kinds of provisions are listed in Appendix B and are discussed as strategies on pages 50 to 51.

Some key concepts of sovereign immunity that may provide protection relating to the use of RWIS are explored below. In each state, however, a complex interaction of statutory and case law has defined the circumstances under which state DOTs and their employees can be held liable.108 Appendix B contains a state-by-state list of statutory and constitutional references related to sovereign immunity and claims against the state.
Exceptions to Waivers of Sovereign Immunity

The Federal Tort Claims Act is subject to some exceptions, which protect government entities from liability for certain kinds of claims. These include the discretionary function exception and the misrepresentation exception (28 U.S.C. §2680 [a] and [h]), described below. Generally, if one of these exceptions applies, a case will be dismissed without the court reaching a decision on its merits.109

The few claims against the National Weather Service (NWS) related to negligent weather forecasts or severe weather warnings have generally been resolved in favor of the government due to the application of these FTCA exceptions.110 In other cases, however, these exceptions have not provided absolute protection against liability for weather-related activities.111 In addition, at least the discretionary function exception also has been applied to roadway maintenance issues.112

Thus, whether state governmental entities will be protected by these exceptions depends on the relevant statutory law and how that law has been interpreted,113 as well as on the facts and circumstances of a particular case.

The Discretionary Function Exception

The discretionary function exception in the FTCA is drawn from common law principles, under which immunity still applies to essentially governmental functions that require the exercise of discretion or judgment, such as planning or policy level decisions. These “discretionary functions” have been conceptually distinguished from “ministerial” (or “operational”) functions that involve only the execution of policies and set tasks.114 This distinction, grounded in the principle of separation of powers, prevents interference by the judicial branch of government with the legislative and executive branches. It also allows basic governmental policy and planning decisions to be made and implemented without the threat of tort liability.115

The FTCA, on which many state tort claims acts were based, states that the waiver of immunity for the federal government shall not apply to:

Any claim based on an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused (28 U.S.C. §2680[a]).

The discretionary function exception generally also protects governmental entities and employees from liability if a planning or policy decision that leaves no room for discretion—such as a mandatory statute, regulation or policy—is implemented with due care. Liability can result, however, if there is negligence arising out of acts or omissions in the process of executing ministerial functions, or if a mandate is violated.116 According to Klein and Pielke,

To summarize, if a mandatory statute, regulation, or policy leaves no room for discretion and the government complies with the mandate, it is shielded from liability. If the government violates that mandate, it is not shielded from liability. If the government is granted discretion, a strong presumption arises that
its decisions are grounded in policy and thus the government is shielded from liability.\textsuperscript{117}

This is discussed further on page 26 and in the context of strategies to address liability concerns on pages 44 to 45.

At least 26 states, following the federal model, have incorporated a similar provision into state statutes, exempting state governments from liability for performance or non-performance of discretionary functions\textsuperscript{118} (see Appendix B). Like the federal version, these provisions also tend to exempt from liability any acts or omissions of state employees exercising due care in the execution of a statute or regulation.

Some states’ discretionary function exemptions use language that differs from the federal provision. For example, Delaware provides that no claim can arise against the state if certain conditions are met, including that:

\ldotsthe act or omission\ldotsarose out of and in connection with the performance of an official duty requiring a determination of policy, the interpretation or enforcement of statutes, rules or regulations, the granting or withholding of publicly created or regulated entitlement or privilege or any other official duty involving the exercise of discretion on the part of the public officer, employee or member, or anyone over whom the public officer, employee or member shall have supervisory authority\ldots\textsuperscript{119}

The Texas Tort Claims Act offers a different expression of this principle. The waiver of immunity does not apply to a claim based on “a governmental unit’s decision not to perform an act or on its failure to make a decision on the performance or nonperformance of an act if the law leaves the performance or nonperformance of the act to the discretion of the governmental unit.”\textsuperscript{120} Indiana’s statute states that, “[a] governmental entity or an employee acting within the scope of the employee’s employment is not liable if a loss results from\ldotsthe performance of a discretionary function,”\textsuperscript{121} and New Jersey’s simply says that, “[a] public entity is not liable for an injury resulting from the exercise of judgment or discretion vested in the entity.”\textsuperscript{122}

In other states, these distinctions have been recognized through judicial interpretations of state waivers of immunity rather than in statute. Either way, the kind of function in question often will determine whether the governmental entity has immunity in a given case.\textsuperscript{123} Although various tests have been developed by the courts to determine whether a function is discretionary or ministerial, in practice the distinction is not always clear.\textsuperscript{124}

\textit{Discretionary Functions and Weather-Related Activities.} The discretionary function exception has been an especially important factor in federal cases relating to public sector weather service provision. In several cases, the NWS, which is commissioned by statute to provide weather forecasts and warnings, has been protected from liability due to this exception.\textsuperscript{125}

In the leading 1986 \textit{Brown v. U.S.} decision, for example, the U.S. First Circuit Court of Appeals reversed a district court decision finding the NWS negligent for not having accurately predicted the path of a severe storm that resulted in the death of four fishermen.\textsuperscript{126} The district court had found that the NWS’s failure to fix or replace a malfunctioning weather data buoy contributed to the negligence, and held that the discretionary function exception did not apply...
because “once a [weather monitoring and prediction] system was in place and mariners began to rely on it, the time for policy judgment was past.”\textsuperscript{127} The government had “induced reliance and thus became obligated to use due care in how that service was operated.”\textsuperscript{128}

The appellate court strongly rejected this reading of the discretionary function exception, however, holding that weather forecasting and related resource allocation decisions such as equipment maintenance and repair are discretionary, policy-related functions—“precisely the type of activity the discretionary function exception was intended to cover”—and as such are immune from liability.\textsuperscript{129} (See pages 26 to 27 for further discussion of resource allocation and the discretionary function exception.)

In a more recent case against the NWS, \textit{Bergquist v. U.S.} (see also pages 26 and 27), the U.S. District Court also found that the services of weather forecasting and release of severe weather warnings—in this case, relating to tornadoes—were clearly covered by the discretionary function exception.\textsuperscript{130} The discretionary function exception also has protected the NWS from liability for forecasts in several other cases.\textsuperscript{131}

Not all courts have agreed that the discretionary function exception necessarily applies to all weather-related activities.\textsuperscript{132} In \textit{Connelly v. State of California} in 1970—which was decided prior to \textit{Brown} and under a state immunity statute rather than the FTCA—the California Court of Appeals held that the decision to issue flood forecasts was “a policy-making function, a discretionary activity within the scope of governmental immunity,” but the subsequent activities of “gathering, evaluating and disseminating flood forecast information” were “administrative or ministerial activities outside the scope of governmental immunity.”\textsuperscript{133} The court determined that the State of California Department of Water Resources could be held liable for the latter.\textsuperscript{134}

In cases both prior and subsequent to \textit{Brown}, the discretionary function exception has failed to protect the FAA from liability for providing inaccurate real-time weather information, even when the exception was explicitly asserted as a defense.\textsuperscript{135} Relevant cases include \textit{Ingham v. U.S.} (see also pages 17 and 27) and \textit{Tinkler v. U.S.}\textsuperscript{136}

In summary, while the discretionary function exception may be relevant to dissemination of road weather information by state DOTs, its actual applicability is unresolved. On the one hand, federal court decisions relating to the discretionary function exception in the FTCA often are considered when determining what functions are discretionary under state law, especially if state statutes contain a similar provision.\textsuperscript{137} Thus, the cases reviewed above in which the discretionary function exception afforded protection to the NWS for various weather-related activities—including forecasts, warnings and resource allocation—may be relevant to state situations.

On the other hand, in \textit{Connelly} (described above), the court made a distinction in deciding which weather-related activities were covered by the state’s discretionary function exception. Further, as shown by the several cases involving the FAA (also described above), this exception may not provide protection if there is a clearly defined duty and real-time weather information is being provided.\textsuperscript{138} Meaningful distinctions also might be drawn between the duties and functions of a DOT versus a weather service provider or the FAA, or between road weather information and general forecasts, severe weather warnings or aviation-related weather information. Clarification of these issues is a task for the courts.
Regardless, as made clear by the U.S. Supreme Court in *U.S. v. Gaubert* in 1991, the discretionary function exception will not apply, and a suit may proceed, in circumstances where a statute, regulation, or policy was violated that “...specifically prescribes a course of action for an employee to follow, because the employee has no rightful option but to adhere to the directive” (see also pages 23 to 24). Therefore, the NWS has carefully avoided issuing policy directives that require a course of action and might thereby take away employee discretion. This approach is based on an underlying assumption that weather-related activities—such as issuing forecasts, watches and warnings—by their nature require a high level of discretion on the part of NWS forecasters. This is revisited in Chapter 5 as a strategy to address liability concerns (see pages 44 to 45).

**Discretionary Functions and Resource Allocation Decisions.** Besides providing governmental entities with some immunity for weather-related activities, the discretionary function exception has also been applied to resource allocation decisions, such as those relating to roadway maintenance and equipment repairs.

In cases relating to roadway maintenance, courts have held that DOTs are necessarily exercising discretion, and are therefore immune from liability, when making decisions about allocating resources such as funds, personnel or equipment (see also page 21). At the federal level, the *Brown* appellate court decision (described on page 24) held that the FTCA discretionary function exception applies to resource allocation decisions, including those to do with maintaining and repairing weather observation equipment. Likewise, in *Bergquist* (described above on page 25; see also page 27), the court found that NWS decisions relating to the plaintiff’s claims of allegedly inadequate technologies, staffing levels and training were covered by the discretionary function exception, because these choices implicated cost and budgetary policy considerations.

At least one state’s tort claims act makes this application of the discretionary function exception to resource allocation explicit. New Jersey provides that:

> A public entity is not liable for the exercise of discretion in determining whether to seek or whether to provide the resources necessary for the purchase of equipment, the construction or maintenance of facilities, the hiring of personnel and, in general, the provision of adequate governmental services; and

> A public entity is not liable for the exercise of discretion when, in the face of competing demands, it determines whether and how to utilize or apply existing resources, including those allocated for equipment, facilities and personnel unless a court concludes that the determination of the public entity was palpably unreasonable. Nothing in this section shall exonerate a public entity for negligence arising out of acts or omissions of its employees in carrying out their ministerial functions.

When relying on such defenses, DOTs must show that the decision was “thoughtful, pre-mediated and deliberate,” met a standard of reasonable care, and demonstrated a legitimate process of prioritization. A DOT may be held liable if it presents no evidence about a planning or prioritization process or the limitations of available funding. Financial feasibility, however, may not be the sole reason for failing to correct a hazard and protect public safety.
Exceptions to these general rules exist. In another Nevada case, for example, the DOT was held liable for failing to clear a road during a winter snowstorm, despite the fact that it had deployed its limited resources elsewhere according to pre-established, deliberate route prioritization.\textsuperscript{147}

Decisions about the allocation of limited resources relate to the RWIS-related liability concerns identified in this report. Concerns about DOT RESPONSE TO NOTICE (pages 12 to 13) include the possibility that a DOT might not respond to notice of a dangerous condition provided by RWIS, due to limited resources. Also, the decision whether to deploy RWIS at all could be a resource allocation decision, although choosing not to do so might lead to liability exposure (see LACK OF RWIS on pages 13 to 14). The discretionary function exception might provide some protection in such situations. However, since the discretionary function exception may not apply in all cases, states have also addressed these concerns with other strategies including limits on information sharing, online disclaimers, and public outreach and education (see pages 30 to 33, 33 to 36, and 45).

\textbf{The Misrepresentation Exception}

The Federal Tort Claims Act also contains an exception to governmental liability relating to misrepresentation, which has been broadly applied to weather-related activities:\textsuperscript{148}

\begin{quote}
\textit{The provisions of this chapter and section 1346(b) of this title shall not apply to--}

\begin{itemize}
\item[(h)] Any claim arising out of assault, battery, false imprisonment, false arrest, malicious prosecution, abuse of process, libel, slander, misrepresentation, deceit, or interference with contract rights… (28 U.S.C. §2680[h])
\end{itemize}
\end{quote}

States that have incorporated similar provisions into their statutes include Alaska,\textsuperscript{149} California,\textsuperscript{150} Hawaii,\textsuperscript{151} Idaho,\textsuperscript{152} Iowa,\textsuperscript{153} Nebraska\textsuperscript{154} and Oklahoma\textsuperscript{155} (see Appendix B).

This exception has been held to be relevant in federal cases. In \textit{Bergquist} (described above on page 25; see also page 26), for example, the district court followed earlier decisions by holding the exception to mean that “courts are deprived of jurisdiction over any tort claim based upon the government's alleged failure to communicate correct information,”\textsuperscript{156} whether intentional or negligent.\textsuperscript{157} The court held that, therefore, the misrepresentation exception as well as the discretionary function exception protected the NWS from liability for weather forecasts and warnings.

Other courts have disagreed, however, about whether the misrepresentation exception protects government agencies from liability for inaccurate weather information. In \textit{Ingham v. U.S.} (see also pages 17 and 25), the Second Circuit held that the FAA could be held liable for providing erroneous weather information to incoming aircraft. The court concluded that application of the misrepresentation exception to any incorrect information was “too broad, for it would exempt from tort liability any operational malfunction by the government that involved communications in any form,” and that the exception was intended to be limited to misrepresentations in financial or commercial contexts.\textsuperscript{158} At the state level, in \textit{Connelly} (see page 25), the court also held that the state statute providing immunity for misrepresentation applied only to financial or commercial contexts.\textsuperscript{159}
The misrepresentation exception may be especially relevant to RWIS-related liability in situations where allegedly incorrect, untimely or misleading road weather information provided by the state DOT is an issue (see DIRECT DISSEMINATION on pages 11 to 12 and THIRD-PARTY ISSUES on page 12). States that recognize this exception in statute (see above) may particularly wish to explore this further.

In cases where the misrepresentation exception does not provide protection, the following section from the second Restatement of Torts (§311, 1965) about negligent misrepresentations that result in bodily harm or physical damage may be relevant:

1) One who negligently gives false information to another is subject to liability for physical harm caused by action taken by the other in reasonable reliance upon such information, where such harm results
   a) to the other, or
   b) to such persons as the actor should expect to be put in peril by the action taken.

2) Such negligence may consist of failure to exercise reasonable care
   a) in ascertaining the accuracy of the information, or
   b) in the manner in which it is communicated.

These common law principles may apply to provision of inaccurate or misleading weather information, perhaps including dissemination of road weather information or RWIS data.

**Statutes Relating to Immunity for Highway Defects and the Effects of Weather**

Some states further define the limits of immunity through statutes relating to liability for specific actions or circumstances. Some waive immunity for DOTs for damages resulting from weather-related road conditions; others expressly provide such immunity. These statutes are highly relevant, given that all the RWIS-related liability concerns in this report fundamentally deal with accidents occurring under adverse weather conditions (see Chapter 3).

State tort claims acts often specify governmental entities’ exposure to liability for the conditions of their highways, roads and streets. Such statutes may make states liable specifically for claims arising from dangerous or defective roadway conditions, negligence in highway construction or maintenance, or failure to keep the highways open, in repair, and free from nuisance. In some states such as Massachusetts, statutes that allow the state to be held liable for injuries caused by roadway defects have been broadly interpreted to include the effect of weather on roadway conditions. In Colorado, application to weather-related conditions is expressly provided in the statute. As discussed above, liability under these provisions may depend on whether the state DOT had actual or constructive notice of the dangerous condition (see pages 20 to 21); such notice may not be required if a condition was created by a DOT, since it is presumed to have knowledge of its own actions.

Other tort claims acts expressly protect governmental entities from liability related to certain types of highway conditions; in some cases, immunity is provided specifically for conditions caused by the effect of weather. States that have adopted this kind of “weather immunity statute” include California, Indiana, Iowa, Kansas, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, North Dakota, Oklahoma, South Carolina and Wyoming. (The full text and citations for these provisions is included in Appendix C.)
There are some variations in these state statutes. In California, the state may be held liable in cases where the effect of weather conditions “would not be reasonably apparent to, and would not be anticipated by, a person exercising due care.”\textsuperscript{167} In Kansas,\textsuperscript{168} Minnesota,\textsuperscript{169} North Dakota,\textsuperscript{170} Oklahoma\textsuperscript{171} and South Carolina,\textsuperscript{172} immunity does not apply if the condition is affirmatively created by the negligence of the governmental entity’s employees. New Hampshire provides its DOT with immunity for damages arising from weather-related hazards, even if it has actual notice or knowledge of them, “absent gross negligence or reckless disregard of the hazard, of a winter or inclement weather maintenance policy or set of priorities adopted in good faith.”\textsuperscript{173} In Iowa, to be protected from liability, the state must demonstrate that it has “complied with its policy or level of service” for snow or ice removal or treatment strategies.\textsuperscript{174}

Such statutes may affect the applicability of other state laws. For example, in a 1986 New Jersey case, a state court ruled that the weather immunity statute took precedence over a law requiring the DOT to provide warning of dangerous conditions. This gave the DOT immunity from negligence in cases relating to icy conditions, regardless of whether it had received timely notice of the danger.\textsuperscript{175}

Such statutes may protect a DOT generally from liability connected to weather-related damages and injuries, and so are discussed further in Chapter 5 as a legislative strategy.
5. STRATEGIES TO ADDRESS RWIS-RELATED LIABILITY CONCERNS

This chapter highlights the strategies available to address concerns about RWIS-related liability. Possible DOT strategies specific to RWIS-related concerns include limits on information sharing, online disclaimers, agreements with third parties, system optimization, DOT departmental policies and regulations, public outreach and education, risk management and ongoing allocation of funds. Legislative strategies—including legislation related to tort liability, immunity and appropriations—also may provide a measure of protection. The purpose is to provide a menu of options for reducing liability exposure related to RWIS and to using and sharing road weather information.

Taking strategic action can help address RWIS-related liability concerns. Both DOT personnel and state legislators already engage in many activities intended to mitigate the general liability exposure of state agencies as well as risks associated with road weather management activities and concerns specifically related to using and sharing road weather information. DOT personnel also have taken actions that have liability-related benefits, although they were adopted for other reasons such as quality assurance, public awareness or the improvement of DOT staff skills.

The following review of these activities provides a state-of-the-practice perspective and an extensive menu of options for reducing RWIS-related liability exposure. These strategies were drawn from survey responses, interviews, the literature and other resources such as DOT Web sites. For both DOT personnel and legislators, using these options not only can reduce RWIS-related liability, but also can maximize the benefits of these innovative technologies for transportation agencies and the traveling public.

Department of Transportation Strategies

The strategies described below are actions that can be taken by state DOTs, many in collaboration with DOT legal counsel. Most have already been adopted by at least one state; wherever possible, real-life examples are provided.

Limits on Information Sharing

Sharing specific RWIS sensor-generated data with the public and other entities is only one component of RWIS implementation. DOTs tend to focus instead on internal uses of RWIS that support key maintenance, advisory and control strategies. Indeed, the most common RWIS end-users are DOT maintenance personnel. The traveling public, however, does have an interest in RWIS information. Evaluation data indicates that 80 percent to 94 percent of drivers who use traveler information Web sites believe that road weather information enhances their safety and prepares them for adverse road weather conditions.

At the same time, three of the four liability concerns identified in research for this report relate at least partially to sharing RWIS information. Direct dissemination of RWIS information to the public—particularly online—was the most often identified liability concern, and the
only concern raised in survey responses (see pages 11 to 12). Concerns about DOT RESPONSE TO NOTICE (pages 12 to 13) also involve public access to DOT road weather information. THIRD-PARTY ISSUES relate to sharing RWIS data indirectly, for example through a collaborative project such as Clarus or a weather service provider that repackages the information (see page 12).

Several survey respondents identified specific concerns about the online distribution of pavement condition data reported by in-pavement sensors. This may be partially because liability claims against DOTs arise from roadway accidents, and pavement conditions are by far the most significant factor in weather-related crashes. Approximately 98 percent of all crashes that occur in adverse road weather conditions happen on slick pavement, and over a third of those take place even though the weather is clear. Respondents also expressed concern that data from in-pavement sensors might have particular potential for “errors that would not be detected by human review” or could be especially misleading in implying “unwarranted precision in either location or condition [even though] variability always exists on the real roadway.”

One straightforward and widely used strategy that addresses liability concerns related to directly or indirectly sharing information is simply to restrict what information is shared, with whom and via which media. Twelve survey respondents from 12 states identified placing limits on information sharing as a way to address liability concerns, making it the most frequently described strategy, and nearly all the survey responses described restricting access to their RWIS information even if they did not specify a connection between that practice and limiting liability exposure.

When using this strategy, DOTs limit what information is shared and with whom rather than making all their road weather data publicly accessible. The complete RWIS dataset is then primarily—and sometimes solely—accessible to DOT personnel for internal use. Select other entities also might have access to some or all the RWIS data, for example through a password-protected Web site or XML data feed. In some states, RWIS data is available only to entities that have entered into a contractual data-sharing agreement with the DOT (see pages 38 to 39).

DOTs that do not make all their RWIS data publicly accessible online have generally adopted one or more of the following approaches to sharing road weather information.

- Using RWIS as a monitoring device to support various manual decisions, including what messages or warnings to share with the public and through which media. An RWIS can trigger an alert to DOT personnel, who then may choose whether to post a related advisory on a public Web site or through other media such as highway advisory radio, variable message signs, phone-based 511 services or other warning systems. Alabama, Colorado, Idaho, Montana, Nevada, North Carolina, South Carolina and Tennessee use this approach.

- Using RWIS to issue automated warnings. California, Florida, Nevada and Utah have used RWIS sensors to activate flashing signs to warn of fog, high winds or wet pavement.

- Providing weather-related or roadway condition information from other sources—such as the NWS, a private weather service provider, or field observations—on a public Web site or through other media. (See Appendix D for states that share NWS or other weather service information on their Web sites.)
• Presenting “smoothed” or generalized road weather information, rather than site-specific data, to the public. Many DOTs provide Web-based maps that display winter road conditions in general, color-coded categories.

• Combining these approaches, for example by integrating some specific RWIS data with generalized data, manual warnings and information from other sources. Wyoming uses a combined approach, with a single Web page that links to road advisories, generalized road condition information, weather station atmospheric data and closed-circuit television (CCTV) images (see Appendix D).

Although limiting information sharing is a prevalent approach, many DOTs do share at least some detailed sensor data directly with the public. As of September 2009, at least 17 states—Alaska, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Minnesota, Montana, New Hampshire, North Dakota, Ohio, Tennessee, Vermont, Washington and Wisconsin—shared data from in-pavement sensors online. The Idaho Transportation Department reported having near-term plans to add sensor data to its Web site as well (see Appendix D). Several of these states—including Kentucky, Minnesota, Montana, North Dakota, Ohio, Tennessee and Vermont—share pavement condition status as well as temperature data on their Web sites. Kentucky, Minnesota and Tennessee also provide graphs displaying sensor data over the previous 12 or 24 hours.

At least 10 of the 17 states that make in-pavement sensor data available on a public Web site also provide other weather-related information, messages or warnings through the same medium, but in a separate location. Generally, these states—Alaska, Illinois, Iowa, Kansas, Kentucky, Minnesota, Montana, North Dakota, Tennessee and Wisconsin—provide RWIS data on an RWIS-specific page, while travel and traffic information such as weather-related road conditions, general weather information or travel advisories are on a traveler information or 511 page. This may help address liability concerns related to motorists’ reliance on publicly disseminated road weather information by keeping site-specific RWIS data conceptually and visually separate from warnings and other information meant to be used by motorists in the context of travel decisions.

Clarus provides another example of restrictions on information sharing. State DOTs and other entities can upload all their RWIS data to Clarus. Every observation type from each ESS then is associated with one of two distribution groups: one is for information made available to anyone, and the other for information shared with no one—not even the originating state. Thus, entities can share data with Clarus but also can restrict subsequent access to that data just by using this feature.

In practice, states use this Clarus feature in different ways. The Wyoming DOT, for example, sends atmospheric, pavement condition and pavement temperature data to Clarus, but only allows Clarus to share atmospheric data; the DOT public Web site also only shares atmospheric data. Other states, however, share data with the public through Clarus even though that data is not accessible on their DOT Web sites. The DOTs of Arizona, Colorado, Delaware, Michigan, Nebraska, New Jersey, New York, Oregon, South Carolina, Utah and Virginia now share surface and/or subsurface temperature data through Clarus that is not available on their Web sites.
Another way to limit what information is available to the public is to restrict access to historical RWIS information—for example, by continually overwriting the data, rather than archiving it to be available for open records requests. This may address concerns about use of RWIS data as evidence against a DOT, which was identified as a scenario under DOT Response to Notice (see page 13). On the other hand, some states archive their data specifically to support a DOT’s case if there are legal challenges. The archived information also may have other public uses; for example, as evidence in a case where the DOT is not a party, or to justify a work absence. It also can serve quality control purposes.\textsuperscript{183} Whether to archive RWIS data, therefore, is another issue for DOTs to consider. Kentucky does not archive RWIS data; South Dakota and Washington do.\textsuperscript{184}

The decisions DOTs make about which road weather information to make publicly accessible, to whom and through which media must balance the benefits of sharing RWIS data with other concerns, including possible liability risks. Another key issue to take into account is motorists’ desire for road weather information. According to a 2002 U.S. Department of Transportation survey, “nearly all drivers surveyed want appropriate, relevant weather conditions included with their travel information.”\textsuperscript{185} In practice, there is evidence that motorists do use online and interactive phone weather information services, particularly during inclement weather. In 2001, nearly 13,000 user sessions were logged for a Washington road weather information Web site in one day, during a winter storm.\textsuperscript{186} Further, motorists overwhelmingly believe that online road weather information enhances their safety.\textsuperscript{187}

Not all road weather information is the same, however, nor should it necessarily be disseminated in the same way. In-pavement sensor data may serve a different purpose than travel advisories or active warning systems. Thus, decisions about which information to share, with whom and how require a careful assessment of which information is the most relevant, useful and appropriate to share with the traveling public in a given situation.\textsuperscript{188}

Another important consideration is whether other strategies are available to address liability concerns related to sharing RWIS data through a given medium. States that share sensor-specific data online, for example, have generally provided additional protection against liability by accompanying that data with a disclaimer.

**Online Disclaimers**

The second most commonly described strategy to address liability concerns related to sharing road weather information—identified in seven survey responses—was the use of disclaimers, particularly for content on a DOT’s public Web site. A review of state DOT Web sites\textsuperscript{189} indicates widespread use of online disclaimers. Out of the 43 states that share road weather information online, only seven—Arkansas, Indiana, Kentucky, Montana, Nebraska, New Mexico and Oregon—do not accompany the information with a disclaimer. State online disclaimers—including URL addresses and what kind of information each accompanies—are listed in Appendix D.

Online disclaimers are legal statements intended to provide a measure of legal protection by limiting liability for Web site operators. Generally, disclaimers that accompany road weather information on state DOT Web sites are:
• Disclaimers of liability, which seek to limit or eliminate the department’s liability for damages resulting from the use of the information provided on the Web site; and/or

• Disclaimers of warranty, which deny any warranty or guarantee regarding the quality, accuracy, reliability, completeness or timeliness of the content, sometimes by stating that the information is provided “as is.” The disclaimer of warranty also may describe possible technical problems or weather conditions that may affect content reliability.

Such disclaimers also generally state that the user assumes all risk for using the information.

Beyond that, the disclaimers being used by state DOTs to limit their liability for online road weather information vary widely. First, their context varies. Some are stand-alone statements, while others are clauses within comprehensive terms-of-use agreements (TOUs) or policy statements. These statements may also cover other issues such as privacy, security, endorsements, links, intellectual property, choice of law, restrictions on use, disclaimers of warranties for contractors or indemnification of the Web site operator by the user.

Disclaimers also vary in their location and type. Most are “browse-wrap” statements accessed by clicking on a link, usually at the bottom or side of the page. New Hampshire and Vermont take a slightly different approach on their interactive 511 Web site maps by including a link to a weather data disclaimer in the pop-up windows that display data from specific weather stations. At least one state, Texas, has a “click-wrap” agreement, where the user must click on “I accept” and agree to this disclaimer before being accessing a road conditions map:

Road conditions can change quickly. Although we try to update information as soon as possible, we are not assuming any responsibility for any damages if you rely on it. We offer no warranty that this report is accurate or complete. By clicking on “I Accept”, I agree to these conditions.

Disclaimers related to online road weather information also vary widely in their content. In addition to—or sometimes instead of—disclaimers of liability or warranty, states have included the following (for all state examples, see Appendix D).

• Explanations of the purpose of the site, for example that information is provided as a public service or for information only. State examples include Alaska, Colorado, Delaware, Idaho, Indiana, Kansas, Kentucky, Louisiana, Minnesota, Montana, Nevada, New Mexico, New York, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Virginia, Washington and West Virginia.

• Descriptions of how, when or by whom the information is gathered, reported or monitored. State examples include Alaska, Colorado, Idaho, Louisiana, Minnesota, Nebraska, New Mexico, Utah and Virginia. Illinois provides an extensive description of RWIS technologies and their limitations.

• Statements that discourage reliance on the information, either explicitly or by expressing that the information provided should not be used as the sole basis for travel decisions. State examples include Colorado, Idaho, Indiana, Iowa, Missouri, Louisiana, Nebraska, New Hampshire, New York, South Carolina, Virginia and West Virginia. In addition,
Wyoming states, “The prudent traveler relies on multiple sources of weather information for mission critical use.” (See page 17 for more on induced reliance.)

- Encouragement to the users to report any errors or omissions for investigation. State examples include Illinois, New Jersey and Vermont.

- Disclaimers of duty to continue the provision of the data. State examples include Illinois, Kansas, Minnesota, South Carolina, Utah, West Virginia and Wisconsin.

- Warnings that the provision of road weather information does not guarantee any particular maintenance activities—such as plowing, sanding or de-icing—have occurred. State examples include Alaska, Nevada, New York, Utah and Washington.

- General travel safety advice. For example, Colorado and Nebraska advise motorists to always drive at speeds reasonable to the condition of the highway. Idaho, Minnesota, Montana, North Dakota, South Dakota, Utah, Virginia and Washington caution motorists to be alert to changing circumstances or adjust their driving accordingly. Indiana and New York encourage travelers to “consult local weather forecasts…and to plan their drive according to local conditions” and Nebraska counsels, “If weather is severe, always consider postponing your trip until conditions improve, and road crews have cleared the highway.”

- Clauses that protect against other liability risks generally associated with use of Internet technologies. Georgia, Illinois, New York, North Dakota, South Carolina, Vermont and Wisconsin disclaim liability related to viruses, line failure, computer or other software-generated problems, or “other harmful components.”

Some of these clauses address elements of the liability concerns identified in the research. The possible liability risks of undertaking a new duty with its own standards of care (see pages 17 and 19), especially providing road weather information to the public (see DIRECT DISSEMINATION and LACK OF RWIS on pages 11 to 12 and 13 to 14), are partially addressed by disclaimers against continuing data provision, explanations about issues that might affect data accuracy or reliability, and clauses that discourage reliance on the information. Statements that no maintenance response is guaranteed as a result of any road weather information discourage assumptions about how DOTs will respond to notice of a dangerous condition, discussed under DOT RESPONSE TO NOTICE (see page 13).

In addition, some initial DOT concerns about indirectly sharing road weather information with the public through Clarus (described under THIRD-PARTY ISSUES on page 12) have been resolved by providing links to participating agencies’ disclaimers on the Clarus Web site. This was a creative resolution to the third-party issues raised by a collaborative effort among numerous entities.

Disclaimers are considered a valuable tool to provide extra protection against liability for sharing information—especially online—even when other protections exist. Even the NWS, which has been almost universally protected from liability due to certain exceptions in the Federal Tort Claims Act (see pages 23 to 28), has still included a link to a disclaimer of liability and warranty on its forecast Web pages. Disclaimers also can educate the public, which can provide some additional protection (see page 45).
Disclaimers—and TOUs generally, as discussed on pages 37 to 38—represent a kind of contract, however, and their enforceability and effectiveness are not guaranteed; these will depend on the specifics of a given case. Relevant factors may include applicable public policy, how broadly the clauses were written, whether users of a Web site were given clear notice that the disclaimer existed, whether active assent was required (e.g., through a “click-wrap” agreement), whether the disclaimer was understandable, whether the terms were fair, and what overall message was received by the user. In general, concerns exist about the fairness and enforceability of “browse-wrap” TOUs or disclaimers that are accessible only as a link, that may not be read or even noticed by Web site users, and for which “mutual assent is marginal at best.”

Research for this report revealed great variability in the conspicuousness of online disclaimers that accompany road weather information, ranging from the Texas click-wrap agreement to the disclaimer on the Kentucky 511 Web site that, at the time of writing, is accessed by a link that is literally invisible at the bottom of the page. Further, some states have comprehensive disclaimers only on their main government Web site or on the DOT home page; those disclaimers are not linked to the pages where road weather information is located. The clarity and comprehensiveness of online disclaimers also vary widely (Appendix D).

Although disclaimers are a widely used strategy on the menu of options to address liability concerns, they may not provide absolute protection; therefore, integration with other strategies may be appropriate. Also, while best practices generally indicate that a disclaimer should be clear, conspicuous, consistent with existing law and include active assent when possible, crafting an appropriate disclaimer that takes into account the unique situation of a specific DOT—including the intended users of its Web site, how the site functions, what information is shared, applicable laws and any other relevant context—is best done with expert legal advice.

Agreements with Third Parties

Concerns about third-party issues (see page 12) relate to the use by third parties of road weather information originating from the DOT. Liability concerns arose from the possibility that a third party might, when passing DOT-generated RWIS information to the public, attribute the data but not protect its accuracy and timeliness or fail to accompany it with relevant disclaimers, explanations or cautionary statements.

One strategy to address this concern is agreements with third parties that relate to use of RWIS data. These agreements can define allowable use of RWIS information by third parties and/or describe the limits on DOT liability for such uses. Three approaches generally are used for these agreements, depending on the situation—especially how the information is accessed and by whom.

- For data that is accessible to the general public on a Web site, DOTs may use online terms of use agreements (TOUs).
- For information that is made available only to select, known third parties, formal data-sharing agreements may be used.
- As a third approach, some states have engaged in informal arrangements with parties that have privileged access to RWIS data.
Online Terms of Use Agreements (TOUs)
Online Terms of Use Agreements (TOUs) seek to define the legal relationship between Web site operators and users. Like online disclaimers, TOUs for DOT Web sites that disseminate road weather information also vary widely in their content, location and context.

TOUs may include disclaimers that seek to limit DOT liability for damages resulting from the use of the information provided on its Web site, deny any guarantee of data quality, or state that the user assumes the risk for using the information (see pages 33 to 36). These agreements also can contain many other provisions that can be relevant to liability for third-party uses of Web site content. These include “restrictions on use” clauses that limit how a Web site and its contents can be used and “definitions of rights” clauses, such as those that define copyright protections.196

State DOT online TOUs vary in content.

- Arizona retains all rights to the information on its 511 Web site, including, but not limited to, the right of distribution.

- Alaska, Florida, Georgia, Indiana, New York and South Carolina prohibit any re-use or republication of DOT Web site content without express permission of the DOT. Georgia further details requirements for redistribution, such as those pertaining to author attribution.

- Georgia and South Carolina state that no ownership rights are acquired by downloading or having permission to redistribute copyrighted material.

- Indiana and New York assert state ownership of the data on their Web sites.

- Texas warns that publicly accessible information may still be protected as the state’s intellectual property and requires copied information to reflect the copyright, trademark or other intellectual property rights of the agency from which information is being used.

- New Jersey, Rhode Island and Utah allow distribution of their data, but make no warranty that materials on their Web sites are free of copyright or trademark claims or other restrictions or limitations on their use or display.

- The Nebraska Department of Roads, in its online disclaimer, “allows the use of the information, including but not limited to data/design files, logs, and manuals, from its Web site on the express condition that such information is to be used at the user’s risk.”

- Tennessee and Texas allow their information to be copied, as long as it is presented in a non-misleading way and does not imply state endorsement of an external Web site. In both states, users of state information must identify the state agency that is the source of the information and include the agency’s Web address. Texas also requires the site owner to include the date the information was copied and prohibits third parties that link to its Web site from misrepresenting the content, origin or ownership of the content of a state agency Web site.
Texas also specifies how links to state agency Web sites should function and how data may be captured.

TOUs also vary in location and context. Some are linked to Web pages that contain RWIS information, while others are accessible only via state government or DOT home pages. Georgia, Nebraska, New Jersey and South Carolina include relevant clauses in comprehensive TOUs or other Web policy statements. Alaska, Indiana and Wisconsin place these provisions in a distinct location. For some states, including some that provide sensor-specific data online—such as Ohio and Illinois—no restrictions on use or copyright provisions were found.

Of the online TOUs reviewed for this report, only two were specifically connected to road weather information: Indiana and New York embed statements in their winter travel advisory disclaimers about allowable use and copyrights. Among other provisions, both disclaimers indicate that the state agency owns the information on the Web site and that the data cannot be sold, used in any process for resale as a value-added product, or otherwise distributed for profit in any form without express written consent.

The complex legal issues involved with Terms of Use Agreements and their enforceability or effectiveness include elements of intellectual property law, internet law and contract law and are outside the scope of this report. As with online disclaimers, decisions about how or whether to use such agreements or specific clauses related to third-party use—and how these provisions may apply to RWIS data—will depend on a given situation and require expert legal advice.

Data-Sharing Agreements

In states where limited or no RWIS data is shared with the general public, select entities sometimes are given privileged data access, perhaps via an XML or FTP feed. In some states, such privileged access is available only to entities that have a contractual, written data-sharing agreement with the DOT. Depending on the agreement, such agreements can be another strategy to address liability concerns identified under third-party issues (see page 12). Alaska, Arkansas, Colorado, Idaho, Kansas, Minnesota, Missouri, Oregon and New York currently use data-sharing agreements.

Use of formal data-sharing agreements generally gives a DOT awareness of, and control over, the entities using its RWIS data and the purposes of use. DOTs may consider liability-related issues when choosing the entities with which to share data. The Colorado DOT, for example, will not enter into a data-sharing agreement or give data access to any entity that requires the DOT to be liable or indemnify the entity for the information. Data-sharing agreements also can define the circumstances under which a DOT can terminate data access.

Specific elements of data-sharing agreements that can be used to address liability concerns include indemnification clauses that protect the data provider from liabilities arising from the other party's use of the data, clear restrictions on how the other party can use or distribute the data, attribution requirements, and statements about data ownership or copyright infringement. These agreements also can incorporate a DOT's general disclaimer of liability for RWIS data. The Colorado DOT, for example, has developed and incorporated a standard waiver provision into its data-sharing agreement.
Contractual data-sharing agreements can take different forms, depending on the entities involved, the specifics of the situation and the nature of the information being shared. For example, the Colorado DOT basically uses three kinds of agreements:

- Licensing agreements with media partners and other entities that install equipment in the DOT Transportation Management Center and have access to DOT camera images;

- Intergovernmental agreements with other public agencies; and

- “Agreements” (previously called memoranda of understanding) with all other third parties that are given access to traffic and RWIS information via an XML data feed. Agreements are tailored to each situation and expire after five years, with an option to renew.202

At the time of writing, the Colorado DOT has “Agreements” with 39 entities and is the only state to have entered into a data-sharing agreement with Clarius, although that arrangement does not specifically address liability concerns.203 In addition, Colorado has integrated data-sharing agreements with other strategies. For example, an explanation that an “Agreement” is required for access to certain data is incorporated into the TOU on the DOT’s travel information Web site.204

Besides addressing certain liability concerns related to third-party use of RWIS data, data-sharing agreements also may be adopted for other benefits. For example, restrictions can be set for how frequently third parties can download information, which helps limit demands on DOT servers.205 Improving overall system functioning can itself be a protection against liability (see System Optimization, below).

As with TOUs, a comprehensive discussion of all the legal issues pertaining to contractual data-sharing agreements is beyond the scope of this report. Drafting and use of any third-party agreement requires expert legal advice that is specific to each situation.

**Informal Agreements**

Some states have given certain third parties privileged access to their information through informal arrangements. Nevada shares unfiltered data—including pavement condition data—with the NWS and the Western Regional Climate Center, on condition that they do not share the information with others. This arrangement was made informally, with no contractual agreement.206 Clearly, use of this informal approach to third-party issues will depend on the factors involved in a specific situation.

**System Optimization**

One of the most important protections against RWIS-related liability is to operate the best possible system—one that functions as intended, is meaningfully integrated into an overall road weather management program, and for which reasonable care has been demonstrated or exceeded in planning, deployment, maintenance and use. DOTs do many things to improve the quality and utility of their RWIS, primarily because doing so allows the system to provide its intended benefits. System optimization should not be overlooked, however, as a real strategy to address liability.
System optimization addresses several RWIS-related liability concerns. Having fewer malfunctions mitigates concerns about DIRECT DISSEMINATION (see pages 11 to 12) by reducing the likelihood of unknowingly releasing inaccurate data. A system that meaningfully supports DOT maintenance decisions with reliable, timely and relevant information can help address liability concerns associated with inadequate responses to notice of weather-related hazards (see DOT RESPONSE TO NOTICE on pages 12 to 13). Finally, a well-maintained, thoughtfully deployed system addresses concerns about LACK OF RWIS (see pages 13 to 14) by avoiding system gaps, malfunctions or degradation.

System optimization involves countless decisions associated with designing, installing, operating, maintaining and upgrading RWIS technologies. The areas reviewed here—system planning, supporting RWIS use by DOT personnel, monitoring and data quality checking, ongoing maintenance, and integrating RWIS with other existing data sources and practices—are emphasized because they address particular liability concerns, have notable recent developments, are especially actionable or might otherwise be overlooked in this context.

**System Planning**

In the process of planning for RWIS deployment or expansion, many practical choices must be made. These include decisions about goals and objectives, stakeholder involvement, key users, appropriate applications, sensor and communications technologies, systems architecture, field component sites, maintenance plans, vendor selection, ITS interoperability standards, performance measures, and design and construction, among others. All these choices affect whether the system will meet the needs of the public and of DOT personnel.

Planning activities also can help address liability concerns. Specific liability concerns and strategies in this report—including information sharing decisions (see pages 30 to 33), relevant legal statements such as disclaimers and data-sharing agreements (see pages 33 to 39) and other risk management issues (see pages 46 to 47)—will be considered during this process.

More fundamentally, a targeted, deliberate approach to RWIS deployment can help address liability, since using RWIS—especially when indicated or expected—can help DOTs avoid certain liabilities (see LACK OF RWIS on pages 13 to 14). Such an approach will include a broad assessment of the known weather-related hazards in the state and appropriate RWIS applications in such situations. One question might be whether planned RWIS deployment deals with some dangerous locations while excluding others that are similar, especially if any have a history of weather-related accidents. Another consideration might be whether a particular RWIS application is considered standard practice in other jurisdictions and could be regarded as a reasonable precaution (see pages 14 and 20).

In addition, because system malfunctions or degradation can result in a failure to provide RWIS-related services where they previously were available for that exact contingency (see LACK OF RWIS on page 14), questions about ongoing investment in monitoring and maintenance can be included in the planning stage (see also pages 47 to 49). Likewise, thoughtfully planning for RWIS use by DOT personnel can address liability by helping staff use RWIS appropriately when it is available and indicated (see next section).

Although these may be especially vital questions during the planning stage, they also are important to consider during operations. Statewide RWIS coordination may help this and other endeavors, especially in states where DOT districts operate in relative isolation. DOTs
also may find it a useful precaution to document how RWIS will be used and where sites will be located in the future.

Supporting RWIS Use by DOT Personnel
As identified under LACK OF RWIS on page 14, liability issues may arise when states have RWIS technologies in place to address weather-related hazards, but the primary end-users—DOT maintenance personnel—do not consistently and appropriately use them. Additional concerns arise if a DOT policy mandating certain actions is not followed (see pages 23 to 24 and 26).

Regular system use by DOT personnel can be supported and encouraged in the planning process and beyond. Some ways to do this include the following.

• Involve road maintenance and traffic operations personnel throughout the process of planning and implementation to “instill a feeling of ownership.”

• Provide adequate, regular training on RWIS for all staff levels. This can include education on RWIS technologies, operation, monitoring, maintenance, available value-added services and integration into maintenance decision processes and traffic operations, as well as RWIS benefits, relevant policies and procedures, and liability issues. Training can help improve skills and has the added benefit of addressing staff resistance to new tools and technologies.

State DOTs already are prioritizing RWIS topics in their training programs. In a recent study on training programs for front-line supervisors in winter maintenance operations, DOTs rated the importance of RWIS as a training topic at an average of 4.26 on a scale of 1 to 5; however, three of 18 responses named “resistance to new tools and technologies” as a challenge the DOT had encountered in these programs. Training tools are available from FHWA and various other organizations.

• Adopt systems that promote ease of use for DOT staff. These could include automatic alerts to maintenance personnel or user-friendly, DOT-specific interfaces.

In general, RWIS information “must be integrated and presented to decision makers in a manner that is easy to interpret and act upon.” Having the informational tools is not enough; they must also be usable and understood. The Alaska Department of Transportation & Public Facilities, for example, currently provides an internal Web site for maintenance and operations personnel that reportedly very few use “due to lack of training and user friendliness.” The state plans to update the site and provide training on it.

Additional factors to consider that may support staff use of RWIS include staffing decisions, work flow and active integration of the system into existing DOT practices.

Monitoring and Data Quality Checking
According to the Federal Highway Administration,

RWIS sensors vary in accuracy and precision. Although this is an accepted condition of sensor operations, sensor errors must be minimized to ensure quality observations.
RWIS, like any technology, is not fail-safe. Consistent monitoring and oversight, including data quality-checking processes, help address liability concerns by facilitating adequate maintenance responses to keep the system operating as intended and its data as reliable as possible. Such processes also allow DOT personnel to provide timely warnings to the public about possible inaccuracies in RWIS data, which may help keep travelers from relying upon that information. This helps address liability concerns about sharing information with the public (see DIRECT DISSEMINATION on pages 11 to 12; see also page 17 for more about induced reliance).

Many options are available for RWIS monitoring and oversight. A DOT can adopt its own program for testing RWIS sensors, for example, pursuant to sensor calibration standards, to evaluate whether the sensor data is reliable and accurate within an acceptable margin of error. Iowa DOT, for example involves various DOT staff with continual RWIS oversight, monitoring and maintenance—in addition to having a vendor contract for RWIS maintenance and calibration. Field personnel help by keeping an eye out for damage or deterioration at sensor sites, while communications, information technology and RWIS staff monitor overall network health and sensor calibration. Iowa DOT also has several in-house monitoring programs that continually watch and log network and sensor performance, and it takes advantage of offline email alert services offered by Iowa State University. (Iowa DOT’s maintenance activities are discussed on page 43.)

A DOT also can take advantage of collaborative projects that provide data quality-checking functions and/or feedback that enhances in-house calibration programs. Participation in a mesonet arrangement, which permits collection and sharing of weather information among a range of users, can alert a DOT to problems in its own data. Likewise, Clarus conducts quality checking on the data it collects and shares; this allows a DOT to assess its network health and provides a sense of data quality and reliability for users. Figure 7 shows an example of feedback provided by Clarus about the results of its quality checks; this information is displayed by clicking on a station marker on the map interface.

**Figure 7. Clarus System Data Quality-Checking Display**

<table>
<thead>
<tr>
<th>Mission</th>
<th>Observation Type</th>
<th>Value</th>
<th>Error</th>
<th>Manual</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>15004</td>
<td>assAirTempSensor</td>
<td>21.6°C</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Indicators:**
- **Dot:** The observation passed the quality check.
- **Cross:** The observation did not pass the quality check.
- **Dash:** The quality check was not run for the observation.
- **Empty cell:** The quality check does not apply to that observation.
Ongoing Maintenance

RWIS maintenance is a key element of the system optimization strategy. Maintenance, like the monitoring and oversight on which it depends (see pages 41 to 42), addresses the liability concerns about system malfunctions or misinformation described under Direct Dissemination, DOT Response to Notice and Lack of RWIS (pages 11 to 12 and 12 to 14). Research for this report reflected varying levels of ongoing RWIS maintenance, which is provided by contract vendors, DOT personnel or a combination of the two.224

At one end of the spectrum are the ongoing maintenance procedures reported by Iowa DOT, where, in addition to a maintenance contract with the RWIS vendor, field personnel help out by rebooting modems and remote processing units, cleaning sensor lenses and managing vegetation; information technology, RWIS and communications staff troubleshoot communication problems.225 (See page 42 for a discussion of Iowa’s monitoring practices.)

At the other end of the spectrum, however, are state experiences where consistent RWIS maintenance was not carried out, resulting in dramatic degradation of established, extensive systems. In New York, for example, the state DOT’s 74-site RWIS—which had been in operation for more than a decade—was functionally and technically obsolete by 2007. With more than 60 percent of the field sites out of service and no overall system integration, the system did not meet its intended purpose. The disrepair was largely attributed to cancellation of the vendor support contract.226

Similarly, in Pennsylvania, the state’s RWIS was largely inoperable—55 of its 74 sites were out of service—when the 2007 Valentine’s Day storm shut down approximately 150 miles of the state’s interstate highways and stranded hundreds of travelers in the cold, some for up to 20 hours. According to an independent audit, the state DOT had not maintained the RWIS for some time before the storm, which severely hampered its situational awareness and ability to respond to the crisis.227

DOTs and the vendors with whom they have contracts can implement maintenance and monitoring procedures that support a consistent standard of system performance. They also may choose to focus on preventive maintenance to avoid more costly repairs during winter months.228

Ongoing RWIS maintenance requires not only effective DOT procedures but also reliable, adequate funding. Depending on the funding allocation process in a given state, both legislators and DOT personnel may support optimal systems that address liability concerns (see pages 47 to 49 and 51 to 52).

Integration of RWIS with Existing Data Sources and Practices

Using RWIS to complement existing data sources and safety practices, rather than replace them, can address liability concerns—particularly those related to system malfunctions, the inherent limitations of RWIS technologies, the failure to provide RWIS, and motorists’ reliance upon inaccurate information (see Direct Dissemination, DOT Response to Notice and Lack of RWIS on pages 11 to 12 and 12 to 14).

DOTs frequently advise motorists to use multiple sources of information instead of relying solely on RWIS data (see pages 34 to 35), and often help them do so by including on their Web sites weather condition information from other public and private weather service providers (see pages 31 to 32).
Likewise, DOTs themselves can incorporate other sources of information into their decision-making processes. State DOTs currently integrate their sensor station data with information from agricultural monitoring networks, air quality sensing stations, airport monitoring stations, closed-circuit television (CCTV) cameras, mobile environmental sensors, mesonets, NWS, FAA, private weather information services, field observations and RWIS in other jurisdictions. Traffic observations and road treatment history also can be used to augment RWIS data. Software such as the Maintenance Decision Support System automatically integrates weather and road surface data with maintenance-related information to support road treatment decisions.

Integrating RWIS data with other resources yields richer, more complete data and better-informed decisions and provides a context in which possible RWIS data inaccuracies are more easily identified. These benefits are discussed under monitoring and data quality checking on pages 41 to 42. Other data sources also may help give notice of hazards if RWIS fails (see LACK OF RWIS on pages 13 to 14).

Just as RWIS data should not replace other source of information, “generally, RWIS devices should not be deployed as substitutes for traditional safety measures.” Combining an optimal RWIS with other maintenance and operations procedures can help address liability concerns related to system malfunctions or failure to use RWIS by ensuring that other techniques are available to mitigate weather-related roadway hazards.

**DOT Departmental Policies and Regulations**

A DOT’s approach to its policies can be one element of a strategy to address RWIS-related liability concerns. This section focuses on policies related to RWIS, but policies in other areas such as snow and ice control also may be relevant, especially with regards to concerns arising from maintenance responses to RWIS data (described under DOT RESPONSE TO NOTICE on pages 12 to 13).

The detail and flexibility in RWIS-related policies may be one relevant factor in addressing liability concerns. On the one hand, detailed, written departmental policies could promote appropriate and ongoing RWIS use by DOT personnel by providing specific, relevant guidance. Detailed policies also could support the implementation of monitoring or maintenance procedures to help maintain the system. Ongoing utilization, maintenance and monitoring all have liability-related benefits (see pages 41 to 43).

The specificity of departmental RWIS policies also might affect how the discretionary function exception to waivers of sovereign immunity apply. If a DOT employee could be shown to have followed a mandatory regulation or policy directive with due care, for example, the discretionary function exception might provide the DOT with immunity (see also pages 23 to 24 and 26).

On the other hand, the NWS approach should also be considered. Because the discretionary exception generally does not protect government entities from liability in circumstances where a mandate that prescribes a specific course of action is not followed, the NWS has carefully avoided policy directives that might take away employee discretion. This approach is based on an underlying belief that weather-related activities such as issuing forecasts, watches and warnings, by their nature, require discretion on the part of NWS forecasters rather than “one-
size-fits-all” procedures (see also page 26). State DOT snow and ice policies also may explain that, due to the many variables involved in winter storms, “it is impractical to develop specific rules” related to DOT maintenance responses. Thus, the nature of specific activities, liability concerns and any relevant legal context involving sovereign immunity may inform how DOT regulations are crafted.

General principles using policies and procedures to address liability concerns include the following.

- Setting standards that can be consistently followed throughout the organization. “When the agency sets standards that are not readily achievable or routinely followed, exposure to liability is greatly increased.”

- If a variation from a procedure or guideline is necessary, documenting the reason for the variation and its approval by a competent authority at the same level that established the procedure. It should be demonstrated that variations are conscious decisions, not omissions or oversights.

Written departmental policies also can help educate the public. Several states post their full written policies or a summary of a specific area—such as winter maintenance policies—online. On the New Hampshire DOT Web site, for example, snow and ice policies are accessed through a “Laws/Policies/Procedures” link. The liability-related benefits of public outreach and education are reviewed in the next section.

Public Outreach and Education

Regular public outreach and education activities—particularly relating to adverse weather, winter maintenance and RWIS technologies—also comprise a strategy to address liability concerns. For example, concerns related to DIRECT DISSEMINATION, DOT RESPONSE TO NOTICE and LACK OF RWIS (pages 11 to 12 and 12 to 14) include scenarios in which inherent limitations of the technology, misinterpretation of RWIS data, reliance on continuing road weather information services or inappropriate public expectations about DOT maintenance responses might give rise to a claim. Public outreach can address all these issues by providing travelers with accurate information and cautions.

Many DOTs use public relations programs to explain winter maintenance to the public and to encourage safe winter driving. These programs can include brochures, public Web sites or a seasonal media campaign. The common DOT practice of posting winter maintenance policies or winter driving tips online also can influence public expectations about DOT maintenance responses (see also above and page 35). Many states also post explanatory statements about the limitations of RWIS technologies on their public Web sites, often in combination with disclaimers, which can help discourage public reliance on RWIS information (see pages 17 and 34 to 35). These practices can help address the likelihood of claims related to maintenance or data dissemination while meeting their primary purpose of supporting public safety in adverse weather conditions.
Risk Management

RWIS-related liability concerns can be addressed by an overall DOT risk management program. Risk management for DOTs has been defined as “the identification, measurement and treatment of exposure to potential crashes and tort liability,” with the general goal to minimize both the fiscal impact of tort claims and the human suffering resulting from accidents. Successful risk management comprises actions to control risks and to minimize the occurrence of tort liability incidents, and risk control and risk finance efforts to reduce the impacts of incidents and claims.

Because risk management has fundamentally to do with minimizing exposure to tort liability, several techniques from this approach overlap with other strategies reviewed in this report:

- Maintaining laws that reduce liability exposure, such as those related to immunity (see pages 49 to 51);
- Educating the general public (see page 45), particularly about highway risks and safety;
- Training DOT personnel (see page 41), especially about their legal duties, liability issues involved in their day-to-day operations and actions they can take to mitigate liability;
- Planning and designing a system to minimize dangerous conditions (see pages 40 to 41); and
- Reviewing relevant departmental policies and procedures (see pages 44 to 45).

Additional components of a risk management program that may help address general liability issues include the following:

- Committing to a preemptive risk management approach by DOT management;
- Establishing or augmenting a comprehensive risk management program, including dedicated staff with defined responsibilities;
- Building and strengthening an ongoing, effective relationship with legal counsel, such as the DOT legal office or the office of the state attorney general;
- Engaging in claims management, with procedures for processing, investigating and resolving claims;
- Maintaining an accurate, up-to-date database of relevant information to support forecasting risks and tort liability costs;
- Transferring risks through insurance and indemnification; and
- Reviewing documentation procedures, including how an agency responds to available information and how it documents what it does and why.
Applying these techniques to specifically RWIS-related concerns, perhaps by more actively involving an existing DOT risk management office in RWIS deployment and assessment, may help provide ongoing protection against liability. Risk management strategies may also benefit from ongoing documentation and involvement of skilled legal counsel.

Ongoing Allocation of Funds

According to an Aurora Program report:

Finding sources of funding for RWIS, especially in the initial stages of implementation, is a major issue. The competition for funds will always remain an issue as agencies struggle to prioritize projects to match their goals and vision. For some agencies, obtaining continued funding has become easier as a result of being able to present the benefits of previously implemented RWIS technologies to upper management.

Continuing investment in RWIS can help address related liability concerns by providing the needed financial resources for RWIS deployment, maintenance, monitoring and use. Both DOT decision-makers and legislators may have some role in funding RWIS, depending on the state’s process for allocating funds. Most state DOTs provide RWIS funding from maintenance and operations budgets; the legislative role in ensuring ongoing support is discussed on pages 51 to 52.

The nationwide transportation funding crisis and its role in increasing competition for needed funds is well-documented. States may have difficulty securing ongoing, stable funding for RWIS; Alaska is a case in point (see right). Ongoing support, however, is what allows RWIS to continue to meet the needs of the public and DOT personnel for which the investment was first made.

Alaska: The Annual Struggle for Funds

In Alaska, finding funds for RWIS maintenance is an “annual struggle,” reportedly because RWIS is not a high priority in the state budget compared to highway projects—even though the state has more environmental sensor stations (118) than any state except Ohio.

Alaska’s recent history of funding RWIS maintenance illustrates some of the difficulties a DOT may face. Before FY 2009, the Alaska Department of Transportation & Public Facilities (DOT&PF) had used around $500,000 per year in federal funds for RWIS deployment and maintenance. In FY 2009, however, the FHWA then specified that those funds no longer could be used for random or preventive maintenance. In the sudden absence of federal support, the Alaska DOT&PF requested $250,000 in state funds for RWIS maintenance for FY 2009, but received only $150,000. These funds were provided from the State of Alaska Operations and Maintenance budget.

It was unknown whether any state funds would be approved for RWIS maintenance for FY 2010. As of July 2009, however, the DOT&PF Division of Program Development decided to portion $150,000 from its operating budget for this purpose. DOT&PF personnel report that although the reduction in maintenance funding has limited their focus to high-priority sites or sites that are less costly to maintain, it has not substantially crippled the system. A total lack of funding for RWIS maintenance would almost certainly have done so, however.

This example illustrates not only the importance of reliable, stable funding for RWIS maintenance, but also the complications that may arise when DOTs must interact with both federal and state funding sources and requirements. In a state such as Alaska, where the legislature approves the DOT budget annually, both DOT personnel and legislators may play an important role in funding ongoing RWIS maintenance and upgrades (see above and pages 51 to 52).

Sources: National Conference of State Legislatures, Survey Data; Jill Sullivan, Alaska Department of Transportation and Public Facilities, e-mail message to author, Sept. 29, 2009.
It has been argued that "the benefits of any system must be quantifiable wherever possible and well-documented in order to justify funding." In the context of competing priorities, it is important to document and communicate the benefits of RWIS use and maintenance, including financial benefits.

The financial benefits of RWIS use can include the following.

- Increased efficiency and productivity, resulting in reduced overall expenditures. In Utah, using RWIS observations to enhance forecasts saved $2.2 million per year in labor and material costs for snow and ice control activities, representing 18 percent of the annual winter maintenance budget. In Idaho, RWIS-supported anti-icing strategies reduced labor hours by 62 percent and material costs by 83 percent.

- Positive effects on roadway safety that help DOTs avoid certain liabilities related to adverse weather conditions and thus the possible costs and damages resulting from litigation.

The financial benefits of ongoing, preventive RWIS maintenance can include:

- Reduction of the likelihood of system malfunctions or degradation, which also can help DOTs avoid certain liabilities (see DIRECT DISSEMINATION, DOT RESPONSE TO NOTICE and LACK OF RWIS on pages 11 to 12 and 12 to 14) and associated litigation costs.

- Preemption of costly, responsive maintenance or system-wide upgrades (see also page 43).

Innovative, cost-effective options for financing RWIS may be available. First, there may be some potential for public-private partnerships for RWIS. These partnerships have been defined as “relationships for physical assets in which private partners are responsible for life-cycle costs—including design, construction and maintenance—and for at least partly financing the projects.”

At least one RWIS public-private partnership is active in the United States. The Arizona DOT entered a new agreement with a private vendor in 2006, which changed its RWIS from a DOT-owned and -maintained system to a data purchase contract. In this agreement, the private vendor is responsible for the state’s sensor sites and is paid for delivering data to the DOT. The private vendor also provides services such as remote data access, a user interface, e-mail alerts, seasonal forecasting and data export to Clarus. Although the vendor owns the hardware, the DOT owns and archives the data. Vendor compensation is tied to data availability, and the vendor loses all monthly compensation if a site is reporting less than 50 percent of the time. The program’s estimated cost was approximately $1,700 per site per month over the five-year term of the program.

In Canada, Alberta Infrastructure and Transportation also entered into an RWIS public-private partnership in 2005. In this agreement, the private vendor is responsible for designing, procuring, installing, operating and maintaining the RWIS equipment, and providing forecasting services, for the 10-year contract. Fees are performance-based, and the private contractor is able to market the data and services generated for profit; a portion of the profits offsets government operating costs. This project won the Alberta Minister’s Award for Transportation Innovation in 2005.
Other U.S. states have had less success with public-private partnerships for RWIS. New Hampshire explored the possibility in 2002, but found no private sector interest at that time.\textsuperscript{256} In 1996, Minnesota pursued a public-private partnership for a statewide RWIS project and received two proposals from private entities, but negotiations were not successful with either group.\textsuperscript{257}

As another way to save costs, some states—such as Alaska, Iowa and Ohio—have used integrated intelligent transportation system platforms that support both weather and traffic sensing capabilities. Combining both technologies into a single system saves money and allows both traffic and weather observation systems to expand beyond their traditional applications.\textsuperscript{258}

**Legislative Strategies**

Legislators as well as DOT personnel can take actions that may affect states’ exposure to liability—both generally and in relation to RWIS. These options include legislation relating to tort liability, immunity and appropriations for RWIS investments.

In general, both legislators and DOT personnel can help promote the effectiveness of these strategies by maintaining good communication with each other.\textsuperscript{259} This helps legislators to understand the issues facing their DOTs and motorists as they deliberate relevant policy and funding choices.

A legislature also can help make these strategies more effective by creating a task force or commission to provide research and advice regarding the state’s liability exposure. In 2009, for example, Oregon Senate Bill 311 created a task force consisting of four legislators to study the effects of laws governing the tort liability of public bodies and to submit recommendations to the legislature.

**Legislation Relating to Tort Liability and Immunity**

Risk management principles generally involve efforts to “create or maintain favorable laws that reduce liability exposure.”\textsuperscript{260} There are many ways in which legislation can affect liability issues for DOTs, particularly through provisions related to tort claims against the state and sovereign immunity. A state would need to carefully assess the legislative options reviewed here within the context of existing legal and political considerations and the needs of its DOT and traveling public. The legislature should especially be kept informed of how a state’s approach to sovereign immunity affects the liability exposure of state government entities.\textsuperscript{261}

**Statutes Relating to Immunity for Highway Defects and the Effects of Weather**

Statutes that waive or provide immunity for DOTs related to damages caused by the effects of weather on roadway conditions are highly relevant to RWIS-related liability (see also pages 28 to 29). Some statutes make states specifically liable for dangerous highway conditions or defects. Others expressly protect states from liability related to certain types of highway conditions. As shown in Appendix C, at least 13 states—California, Indiana, Iowa, Kansas, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, North Dakota, Oklahoma, South Carolina and Wyoming—have adopted “weather immunity statutes” that provide the state with immunity for conditions caused by the effect of weather.\textsuperscript{262} Because such statutes may provide a measure of protection from liability related to weather-related hazards, they also address RWIS-related concerns.
Statutes Relating to Claim Procedures
Another category of relevant legislation relates to procedures for filing a claim against the state. Some states require that a notice of intent be filed within a certain period of time after the incident; in California and Pennsylvania, claims must be filed within six months.\textsuperscript{263} This not only gives states an opportunity to investigate the incident and prepare for litigation, but also provides information so DOTs can correct or warn of the highway conditions identified in the claim.\textsuperscript{264} This protects public safety and reduces the likelihood of further liability related to the same hazards.

Statutes Relating to Limits on Damages
Several statutory provisions can affect the exposure to liability for state entities, by limiting or defining the damages that can be recovered from judgments against the state (see also page 22). Citations for these provisions are included in Appendix B.

One option is to enact statutory provisions that limit, or “cap,” monetary damages by specifying a maximum dollar amount that can be recovered per individual, per occurrence or per cause of action. At least 33 states have such caps (Figure 8). In Florida, Nebraska and North Dakota, damages awarded in excess of the statutory limit are paid through direct legislative appropriation, while Maryland’s statute allows the state treasurer to pay all or part of a tort claim that exceeds the statutory limit from the State Insurance Trust Fund (see Appendix B).

Figure 8. States that Limit Monetary Damages in Judgments Against the State

In addition, at least 29 states have adopted a provision to prohibit judgments against the state from including punitive or exemplary damages (Figure 9).\textsuperscript{265} Statutes in California, Kansas, Maryland, Mississippi, New Jersey, New Mexico, South Carolina and Wyoming also provide that the state cannot be liable for interest prior to judgment.\textsuperscript{266}
In the absence of immunity, states can be attractive targets for litigation, with the resources to pay essentially any judgment. Provisions that limit judgments against the state can help make the state a less attractive target and reduce the fiscal impact of tort liability. For this reason, the California Performance Review recommended in 2007 that the state legislature and the governor work together to limit the state's liability. At the same time, such provisions may offer an option that addresses both governmental accountability and fiscal responsibility. In a 1987 case relating to DOT negligence, for example, the Colorado Supreme Court noted that a legislative committee study of sovereign immunity concluded that a limitation on judgments was the best alternative to either no liability or unlimited liability.

Caps on damages currently range from a low of $50,000 per cause of action in Nevada to a high of $1.5 million per individual in Oregon and $5 million per occurrence in Indiana. When caps are enacted, they may be periodically raised to remain “defensible and reasonable” in the context of inflationary trends. Limits in Oregon were raised through legislative action in 2009; the legislation, Senate Bill 311, also provided a method for making annual adjustments.

Other relevant legislation introduced in 2009 includes two Rhode Island bills—Senate Bill 687 and House Bill 5371—that propose to eliminate pre-judgment interest on any damages against the state. Each also addresses several other elements of governmental tort liability. As of September 2009, both bills were to carry over to the 2010 session.

Appropriations

In the context of the current nationwide transportation funding crisis and competing priorities for limited funds, states may have difficulty securing ongoing, stable funding for RWIS (see also pages 47 to 49). Yet, ongoing funding can help address liability concerns related to weather-related hazards generally and to RWIS use specifically by providing the needed financial resources for deployment, maintenance, monitoring and use.
Further, investing in RWIS may increase efficiency and productivity, thereby reducing overall DOT expenditures; help states avoid costly, responsive maintenance or expensive system-wide upgrades; and perhaps reduce certain liability risks, and thus potential costs or damages resulting from litigation. Most important, ongoing support allows the system to continue to meet the needs of the public and DOT personnel for which the public investment was first made.

In most cases, DOTs allocate funding for RWIS from their maintenance and operations budgets based on departmental priorities. Legislators, however, may also play a vital role in ensuring ongoing funding for RWIS, depending on the state and its processes for allocating funds to DOTs. Legislators may be especially important in this respect in states where the legislature approves specific DOT appropriations (see also page 47). Legislators can participate in this strategy by keeping informed about and, as appropriate, involved in the process for funding RWIS in their states.
APPENDIX A. SURVEY QUESTIONNAIRES

Two rounds of survey research were conducted for this report. In the first round, two versions of the initial questionnaire were sent by e-mail. The LEGAL version was sent to DOT legal counsel, who were located either in DOT internal legal offices or at offices of state attorneys general. The OPERATIONS version was sent to DOT personnel who work directly with RWIS technologies. In the second round two weeks later, the same surveys were re-sent to encourage further participation. In addition, two follow-up questions were included that had arisen from the first round of survey research. To those who had already responded, only the follow-up questions were sent.

Survey Questionnaire: Round 1: Introduction for All Versions

The National Conference of State Legislatures (NCSL), in partnership with the Federal Highway Administration, is currently conducting a 50-state research project about road weather information systems (RWIS). RWIS are technologies that are used by state and local transportation agencies to measure atmospheric, pavement, and/or water level conditions on the roadways. This information is used by road operators to support a wide range of operations and maintenance decisions that affect safety and efficiency, such as those pertaining to winter road maintenance and traveler information.

The focus of our research is on liability risks and concerns relating to using and sharing road weather information, as well as the actions states have taken to minimize those risks. This research will support states’ decision-making in how they use and share road weather information and provide a menu of options for reducing exposure to liability for doing so. We intend to publish the results of this research by September 2009.

I would appreciate it if you could get back to me by [deadline], with a few lines answering each of the following questions. Please note that “state department of transportation” is synonymous with state transportation agency, highway agency, department of roads, department of highways, etc., for the purposes of this survey.

Survey Questionnaire: Round 1: LEGAL Version Questions

1) What is your state’s position regarding tort liability for the state department of transportation? (Full sovereign immunity? Limited waiver of immunity, with or without a cap on damages? No immunity?) Please identify any relevant acts or statutes.
2) In your state, has [the office of the Attorney General/your office, as the state department of transportation's legal counsel] advised the state department of transportation regarding its use and/or sharing of road weather information? If so, please describe.

3) In your state, what liability concerns or risks associated with using and/or sharing road weather information has [the office of the Attorney General/your office] identified, if any?

4) In your state, what policies, procedures, or protocols has the state department of transportation adopted to address liability concerns or risks associated with using and/or sharing road weather information, if any? (This may include policies or procedures that mandate, prohibit, or limit actions by DOT personnel.)

4b) If the state department of transportation has adopted policies, procedures, or protocols to address liability concerns or risks associated with using and/or sharing road weather information, have these actions been successful? Why or why not?

5) In your state, is [the office of the Attorney General/your office, as the state department of transportation's legal counsel] currently recommending any further actions by the state department of transportation to address liability concerns or risks associated with using and/or sharing road weather information? If so, please describe.

6) In your state, has the state department of transportation been involved in any legal action related to using and/or sharing road weather information? If so, please describe.

7) Has [the office of the Attorney General/your office, as the state department of transportation's legal counsel] been involved in any other way with liability concerns or risks associated with using and/or sharing road weather information? If so, please describe.

8) Please share any other information that you think might be helpful to this research.

9) Please provide your name, title, and contact information, as well as your role in providing legal counsel to the state DOT.

Survey Questionnaire: Round 1: Operations Version Questions

1) Briefly describe the state department of transportation’s road weather information systems (RWIS) and how the department uses and shares that information. (What information is gathered? From how many sensor stations? What information is shared, how, and with what audiences? How does the agency use the information?)

2) In your state, how does the state department of transportation handle RWIS maintenance? Please include the total annual budget for RWIS maintenance, if known.

3) In your state, what liability concerns or risks associated with using and/or sharing road weather information have been identified, if any? (This may include concerns or risks identified by the office of the Attorney General, the department of transportation risk management office, department of transportation legal counsel, or any other relevant entity.)
4) In your state, what policies, procedures, or protocols has the state department of transportation adopted to address liability concerns or risks associated with using and/or sharing road weather information, if any? (This may include policies or procedures that mandate, prohibit, or limit actions by DOT personnel.)

4b) If the state department of transportation has adopted policies, procedures, or protocols to address liability concerns or risks associated with using and/or sharing road weather information, have these actions been successful? Why or why not?

5) In your state, is the department of transportation risk management office, Attorney General’s office, department of transportation legal counsel or any other relevant entity recommending any further actions by the state department of transportation to address liability concerns or risks associated with using and/or sharing road weather information? If so, please describe.

6) In your state, has the state department of transportation been involved in any legal action related to using and/or sharing road weather information? If so, please describe.

7) What is your state’s position regarding tort liability for the state department of transportation? (Full sovereign immunity? Limited waiver of immunity, with or without a cap on damages? No immunity?) Please identify any relevant acts or statutes, if known.

8) Please share any other information that you think might be helpful to this research.

9) Please provide your name, title, and contact information, as well as your role in the state DOT, especially as it pertains to RWIS systems.

Survey Questionnaire: Round 2: Follow-up Questions for All Participants

1) In your state, has the state department of transportation been involved in any legal action related to sharing any other kind of real-time traveler information besides RWIS (511, traffic information, etc.)? If so, please describe.

2) In your state, has the state department of transportation used a Memorandum of Understanding or other data-sharing agreement in regards to sharing RWIS data or any other kind of real-time traveler information?
APPENDIX B. CITATIONS RELATING TO STATE SOVEREIGN IMMUNITY AND TORT LIABILITY273

This table lists state statutes and constitutional provisions relating to immunity for, and tort claims against, state governmental entities. It includes all citations that were found in the following categories:

• Constitutional provisions that give the legislature authority over sovereign immunity or tort claims issues;

• Statutes and constitutional provisions relating generally to sovereign immunity or tort claims against the state, including state tort claims acts and statutes establishing procedures for bringing tort claims against the state;

• Statutes that reference a discretionary function exception to governmental liability;

• Statutes that reference a misrepresentation exception to governmental liability;

• Statutes prohibiting punitive damages (also known as exemplary damages) against the state; and

• Statutes that provide limitations (“caps”) on damages (per occurrence, per person and/or per cause of action).

This table does not include the extensive case law addressing these topics nor citations dealing solely with political subdivisions such as municipal and county governments.
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<tr>
<th>State/Jurisdiction</th>
<th>Citations Relating to State Sovereign Immunity, Legislative Authority over Immunity Issues, and Tort Claims Against the State</th>
<th>Statutes Referencing Discretionary Function Exceptions</th>
<th>Statutes Referencing Misrepresentation Exceptions</th>
<th>Statutes Prohibiting Punitive Damages Against the State</th>
<th>Statutes Providing Limitations (“Caps”) on Damages</th>
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<td>New York</td>
<td>N.Y. Court of Claims Act §8: Waiver of immunity.</td>
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²⁷⁸ See note.
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# Appendix C. Weather Immunity Statutes

This table lists state statutes that provide immunity for the state for the effects of weather on streets and highways.

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<thead>
<tr>
<th>State</th>
<th>Statute</th>
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<tr>
<td>California</td>
<td>Cal. Government Code §831</td>
<td>Neither a public entity nor a public employee is liable for an injury caused by the effect on the use of streets and highways of weather conditions as such. Nothing in this section exonerates a public entity or public employee from liability for injury proximately caused by such effect if it would not be reasonably apparent to, and would not be anticipated by, a person exercising due care. For the purpose of this section, the effect on the use of streets and highways of weather conditions includes the effect of fog, wind, rain, flood, ice or snow but does not include physical damage to or deterioration of streets and highways resulting from weather conditions.</td>
</tr>
<tr>
<td>Indiana</td>
<td>Ind. Code §34-13-3-3</td>
<td>Sec. 3. A governmental entity or an employee acting within the scope of the employee’s employment is not liable if a loss results from: (3) The temporary condition of a public thoroughfare or extreme sport area that results from weather.</td>
</tr>
<tr>
<td>Iowa</td>
<td>Iowa Code Ann. §668.10</td>
<td>1. In any action brought pursuant to this chapter, the state or a municipality shall not be assigned a percentage of fault for any of the following: b. The failure to remove natural or unnatural accumulations of snow or ice, or to place sand, salt, or other abrasive material on a highway, road, or street if the state or municipality establishes that it has complied with its policy or level of service for snow and ice removal or placing sand, salt, or other abrasive material on its highways, roads, or streets.</td>
</tr>
<tr>
<td>Kansas</td>
<td>Kan. Stat. Ann. §75-6104</td>
<td>A governmental entity or an employee acting within the scope of the employee’s employment shall not be liable for damages resulting from: (l) snow or ice conditions or other temporary or natural conditions on any public way or other public place due to weather conditions, unless the condition is affirmatively caused by the negligent act of the governmental entity;</td>
</tr>
<tr>
<td>Minnesota</td>
<td>Minn. Stat. Ann. §3.736(3)</td>
<td>Without intent to preclude the courts from finding additional cases where the state and its employees should not, in equity and good conscience, pay compensation for personal injuries or property losses, the legislature declares that the state and its employees are not liable for the following losses: (d) a loss caused by snow or ice conditions on a highway or public sidewalk that does not abut a publicly owned building or a publicly owned parking lot, except when the condition is affirmatively caused by the negligent acts of a state employee;</td>
</tr>
<tr>
<td>Mississippi</td>
<td>Miss. Code Ann. §11-46-9</td>
<td>(1) A governmental entity and its employees acting within the course and scope of their employment or duties shall not be liable for any claim: (q) Arising out of an injury caused solely by the effect of weather conditions on the use of streets and highways;</td>
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<tr>
<td>State</td>
<td>Statute</td>
<td>Text</td>
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<tr>
<td>Nebraska</td>
<td>Neb. Rev. St. §81-8,219</td>
<td>The State Tort Claims Act shall not apply to: (10) Any claim arising out of snow or ice conditions or other temporary conditions caused by nature on any highway as defined in section 60-624, bridge, public thoroughfare, or other state-owned public place due to weather conditions. Nothing in this subdivision shall be construed to limit the state's liability for any claim arising out of the operation of a motor vehicle by an employee of the state while acting within the course and scope of his or her employment by the state;</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>N.H. Rev. Stat. Ann. §230:81</td>
<td>Notwithstanding RSA 230:78-80, the department of transportation shall not be held liable for damages arising from insufficiencies or hazards on public highways or highway bridges thereon, even if it has actual notice or knowledge of them, when such hazards are caused by snow, ice, or other inclement weather, and the department of transportation's failure or delay in removing or mitigating such hazards is the result of its implementation, absent gross negligence or reckless disregard of the hazard, of a winter or inclement weather maintenance policy or set of priorities adopted in good faith by the officials responsible for such policy; and all department of transportation employees and officials shall be presumed to be acting pursuant to such a policy or set of priorities, in the absence of proof to the contrary.</td>
</tr>
<tr>
<td>New Jersey</td>
<td>N.J. Rev. Stat. §59:4-7</td>
<td>Neither a public entity nor a public employee is liable for an injury caused solely by the effect on the use of streets and highways of weather conditions.</td>
</tr>
<tr>
<td>North Dakota</td>
<td>N.D. Cent. Code §32-12.2-02</td>
<td>3. Neither the state nor a state employee may be held liable under this chapter for any of the following claims: i. A claim resulting from snow or ice conditions, water, or debris on a highway or on a public sidewalk that does not abut a state-owned building or parking lot, except when the condition is affirmatively caused by the negligent act of a state employee.</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>Okla. Stat. tit. 51, §155</td>
<td>The state or a political subdivision shall not be liable if a loss or claim results from: 8. Snow or ice conditions or temporary or natural conditions on any public way or other public place due to weather conditions, unless the condition is affirmatively caused by the negligent act of the state or a political subdivision;</td>
</tr>
<tr>
<td>South Carolina</td>
<td>S.C. Code Ann. §15-78-60</td>
<td>The governmental entity is not liable for a loss resulting from: (8) snow or ice conditions or temporary or natural conditions on any public way or other public place due to weather conditions unless the snow or ice thereon is affirmatively caused by a negligent act of the employee;</td>
</tr>
<tr>
<td>Wyoming</td>
<td>Wyo. Stat. §1-39-120</td>
<td>(a) The liability imposed by W.S. 1-39-106 through 1-39-112 does not include liability for damages caused by: (iii) The maintenance, including maintenance to compensate for weather conditions, of any bridge, culvert, highway, roadway, street, alley, sidewalk or parking area.</td>
</tr>
</tbody>
</table>

But see this Colorado statute, which waives immunity for certain weather-related road conditions:

Colo. Rev. Stat. §24-10-106: “Sovereign immunity is waived by a public entity in an action for injuries resulting from: (d)(I) A dangerous condition of a public highway, road, or street which physically interferes with the movement of traffic on the paved portion, if paved, or on the portion customarily used for travel by motor vehicles, if unpaved, of any public highway, road, street, or sidewalk within the corporate limits of any municipality, or of any highway which is a part of the federal interstate highway system or the federal primary highway system, or of any highway which is a part of the federal secondary highway system, or of any highway which is a part of the state highway system on that portion of such highway, road, street, or sidewalk which was designed and intended for public travel or parking thereon. As used in this section, the phrase "physically interferes with the movement of traffic” shall not include traffic signs, signals, or markings, or the lack thereof. Nothing in this subparagraph (I) shall preclude a particular dangerous accumulation of snow, ice, sand, or gravel from being found to constitute a dangerous condition in the surface of a public roadway when the entity fails to use existing means available to it for removal or mitigation of such accumulation and when the public entity had actual notice through the proper public official responsible for the roadway and had a reasonable time to act. …; (III) A dangerous condition caused by an accumulation of snow and ice which physically interferes with public access on walks leading to a public building open for public business when a public entity fails to use existing means available to it for removal or mitigation of such accumulation and when the public entity had actual notice of such condition and a reasonable time to act.”
This table catalogues the disclaimer statements on state DOT Web sites relating to state-generated road weather information that could be found as of Sept. 1, 2009. The statements are provided verbatim. In this context, road weather information includes pavement temperatures, subsurface temperatures, weather conditions (such as precipitation, air temperature, barometric pressure, humidity, dew point, visibility, wind speed, wind direction or weather-specific advisories) and pavement conditions. For pavement conditions, both Web sites that provide general descriptions (e.g., “good”/“fair”/“difficult” or “covered”/“partly covered”/“clear”) and those with more specific descriptions (“snow-covered,” “ice-covered,” “slippery,” etc.) are listed. However, if a state did not post pavement condition online when the research was conducted—e.g., because it lists these data only seasonally—that site is not listed.

The table lists additional weather-related information on state DOT Web sites, including closed-circuit television (CCTV) camera images, links to or embedded data from the National Weather Service (NWS) or other weather service providers, traffic information such as travel times, and links to road weather information software or Web services that provide their own disclaimers. It does not list the disclaimers that accompany that information. Only online disclaimers relating to state-generated road weather information, not other legal statements or terms of use, are listed. This table also excludes Web sites that are not accessible to the public, such as password-protected sites.

If state-generated road weather information was provided on a public Web page with no accompanying disclaimer, that is noted.
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>No state-generated road weather information found on the state DOT Web site.</td>
<td>N/A</td>
<td>• National Weather Service (NWS) link(s)</td>
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<td>• Traffic information</td>
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<td>Alaska</td>
<td>Alaska Department of Transportation and Public Facilities (DOT&amp;PF): Alaska 511 <a href="http://511.alaska.gov/">http://511.alaska.gov/</a></td>
<td>Driving conditions are only reported from approx. October - May each year. Staff will report when adverse weather conditions permit outside of these dates.</td>
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<td>Alaska Department of Transportation and Public Facilities (DOT&amp;PF)</td>
<td>The road condition data provided here by the ADOT&amp;PF and partnering agencies reflect conditions along a segment of road at a specified time. These observations are not updated frequently due to limited personnel out on these highways, especially after normal business hours. The ADOT&amp;PF recommends that you check a number of sources, including the National Weather Service reports, in making your travel plans. Also, these observations can vary greatly within an area and weather conditions can change quickly. For example, road conditions a few miles away from the observation site could be completely different. Therefore, this information should not be used as the only factor in determining whether to travel in a particular area.</td>
<td>• National Weather Service (NWS) link(s)</td>
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<td>Driving Condition Definitions <a href="http://www.dot.state.ak.us/iways/511/winter_driving.shtml">http://www.dot.state.ak.us/iways/511/winter_driving.shtml</a></td>
<td>Driving conditions are only reported from approx. October - May each year. Staff will report when adverse weather conditions permit outside of these dates.</td>
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<td></td>
<td>• Snowplowing, Sanding and Deicing</td>
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<td>Listing of roadway snow and ice conditions is not a guarantee that ADOT&amp;PF has plowed, sanded or deiced any or all locations for travelers either before or after the observations were made. The actual determination of the amount and timing of these services for any particular section of highway is up to the judgment of local road maintenance officials based on their experience and local conditions at particular times.</td>
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<td>• No Winter Maintenance</td>
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<td>A few major highways are not maintained during the winter months. Travel is strongly discouraged for your safety. Please abide by these warnings as roads are impassable due to extreme weather conditions and may be life threatening. Emergency services and travel assistance are not available. These warnings are noted under Urgent Reports on the 511.Alaska.gov. A list is also available in the Winter Driving Tips.</td>
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<td>• Traffic information</td>
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<td></td>
<td>Alaska Department of Transportation and Public Facilities (DOT&amp;PF): Road Weather Information System (RWIS) <a href="http://www.dot.state.ak.us/iways/road_weather/">http://www.dot.state.ak.us/iways/road_weather/</a></td>
<td>Alaska Department of Transportation and Public Facilities (DOT&amp;PF) provides the foregoing information as a public service. This information is published automatically and its accuracy or timeliness cannot be guaranteed. The observation screens are not automatically refreshed; users of this data should use the refresh or reload capability of their web browsers to get the most recent</td>
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### Weather or Not?

<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| Alaska Department of Transportation and Public Facilities (DOT&PF) | - Weather conditions  
- Pavement temperatures  
- Subsurface temperatures | observations. This information depends on internet availability, communication networks, and computer equipment which are beyond the control of the ADOT&PF. The weather links to other sites are provided as a service to the traveling public and do not represent ADOT&PF. Listing of roadway temperatures is not a guarantee that ADOT&PF has plowed or de-iced any of these locations for travelers. Weather and road conditions change rapidly. Members of the traveling public are in the best position to perceive such conditions and adjust their driving accordingly. Those relying on the foregoing information do so at their own risk, and neither the State of Alaska nor any of its employees or agents guarantee the accuracy of this information. The information that is provided on this web site is a property of the ADOT&PF. It is not to be sold, or used in any process for resale as a value-added product, or otherwise distributed for profit in any form without expressed written consent of the ADOT&PF. The ADOT&PF assumes no responsibility for any loss due to any computer or software generated problems associated with these files. It is the sole responsibility of the user to keep all files current with those on the web site. ADOT&PF will provide no technical support. | Alaska Department of Transportation and Public Facilities (DOT&PF)  
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http://www.dot.state.ak.us/pop_termsofuse.shtml  
Only "Warranties and Disclaimers" section included here [excerpted]. Please Note: For brevity, the Alaska Department of Transportation & Public Facilities will be referred to simply as "DOT&PF" in the following text. Warranties and Disclaimers  
The State of Alaska strongly adheres to a belief in the free exchange of information, and extends that philosophy to the realm of electronic media. The state also believes that the exchange of information does not necessarily involve endorsement of that information. The State of Alaska, therefore, will abide by the state’s ethics statutes in all of the material associated with its web site… References to corporations, their services and products, are provided “as is” without warranty of any kind, either express or implied. In no event shall the DOT&PF be liable for any special, incidental, indirect or consequential damages of any kind, or any damages whatsoever, including, without limitation, those resulting from loss of use, data or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of this information. This web site could include technical or other inaccuracies or typographical errors. Changes are periodically added to the information herein; these changes will be incorporated in new editions of this web site. DOT&PF may make improvements and/or changes in the product(s) and/or the program(s) described in this web site at any time. Except as expressly provided otherwise in an agreement between you and |

### Additional Information:

- Link to Alaska 511  
- Link to Alaska Department of Transportation and Public Facilities (DOT&PF) Road Weather Information System (RWIS)
<table>
<thead>
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<td>Arizona</td>
<td>Arizona Department of Transportation (ADOT): Arizona 511 Highway Condition Reporting System (HCRS) <a href="http://www.az511.com/hcrsweb/hcrsweb.jsp">http://www.az511.com/hcrsweb/hcrsweb.jsp</a> • Weather conditions</td>
<td>DOT&amp;PF, all information and software on this web site are provided &quot;as is&quot; without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. DOT&amp;PF assumes no responsibility for errors or omissions in the information or software or other documents which are referenced by or linked to this web site. The DOT&amp;PF reserves the right to deny other web sites the right to link to the DOT&amp;PF web site if after review the linkage would be inappropriate or contrary to our web site’s mission and purpose. Arizona Department of Transportation (ADOT) Arizona 511 Privacy Statement <a href="http://www.az511.com/Information/privacy.php">http://www.az511.com/Information/privacy.php</a> Only &quot;Disclaimer&quot; section included here [excerpted]. Thank you for visiting the AZ511 website sponsored and maintained by the ADOT TOC. ADOT wishes for you to know what type of information may be gathered from this site and how that information could be used. The information at this site is not an official publication of the Arizona Department of Transportation (ADOT) or the State of Arizona. Every effort is made to ensure the information is provided in an accurate and timely manner, however, users should understand errors may occur. As much as possible, please rely on the official version of statutes, rules and policy. If a discrepancy is discovered, please Let Us Know so we can correct it for others. As ADOT cannot guarantee protection from potential alteration or tampering of the materials on this Web site by outside parties, these materials do not constitute &quot;official&quot; versions, and they are not intended, nor can they be relied upon, to create any rights enforceable by any party in litigation with the State of Arizona… The State of Arizona presents the material on this Web site without it or any of its employees making any warranty, express or implied, including the warranties of merchantability and fitness for a particular purpose, or assuming any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or representing that its use would not infringe privately owned rights. Any and all documents available from this Web site may be protected under the U.S. and Foreign Copyright Laws. Permission to reproduce may be required. The State of Arizona retains all rights to the information provided by this Web site, including, but not limited to, the right of distribution.</td>
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<tr>
<td>Arkansas</td>
<td>Arkansas State Highway and Transportation Department (AHTD): Road Conditions <a href="http://www.arkansashighways.com/ro">http://www.arkansashighways.com/ro</a></td>
<td>No related disclaimer found.</td>
<td>• National Weather Service (NWS) information (embedded) • Other external weather service provider information</td>
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<td>• CCTV camera images</td>
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<td>Colorado</td>
<td>Colorado Department of Transportation (CDOT): COTrip Statement included on main page <a href="http://www.cotrip.org/">http://www.cotrip.org/</a></td>
<td>Colorado Department of Transportation (CDOT) COTrip Terms of Use <a href="http://www.cotrip.org/termsOfUse.htm">http://www.cotrip.org/termsOfUse.htm</a></td>
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<td>The State of Connecticut is dedicated to the practice of democracy and strongly believes in the free exchange of ideas. However, we also believe in maintaining a strict standard of excellence in all of the material associated with the State of Connecticut web site by virtue of links from this site...</td>
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<td>WITH RESPECT TO DOCUMENTS AVAILABLE FROM THIS</td>
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| Delaware          | Delaware Department of Transportation (DelDOT): Weather Stations [http://www.deldot.gov/public.ejs?command=PublicWeatherStation](http://www.deldot.gov/public.ejs?command=PublicWeatherStation) | SERVER, NEITHER THE STATE OF CONNECTICUT NOR ANY OF ITS EMPLOYEES, MAKES ANY WARRANTY, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR ASSUMES ANY LEGAL LIABILITY OR RESPONSIBILITY FOR THE ACCURACY, COMPLETENESS, OR USEFULNESS OF ANY INFORMATION, APPARATUS, PRODUCT, OR PROCESS DISCLOSED, OR REPRESENTS THAT ITS USE WOULD NOT INFRINGE PRIVATELY-OWNED RIGHTS. | • CCTV camera images  
• National Weather Service (NWS) information (embedded)  
• Other external weather service provider information (embedded)  
• Traffic information |
|                   | Weather data may contain errors or inaccuracies and are provided "AS IS". You, the viewer, shall be solely responsible for your use of the data. | The State of Connecticut shall not be held liable for improper or incorrect use of the data described and/or contained within this web site. These data and related graphics are not legal documents and are not intended to be used as such. | |
|                   | Delaware Department of Transportation (DelDOT) Web Site Disclaimer | The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data. | |
|                   | [http://www.deldot.gov/public.ejs?command=PublicWeatherStation](http://www.deldot.gov/public.ejs?command=PublicWeatherStation) | The information contained in these data is dynamic and will change over time. The State of Connecticut gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. It is the responsibility of the data user to use the data appropriately and consistent within these limitations. Although these data have been processed successfully on a computer system at the State of Connecticut, no warranty expressed or implied is made regarding the utility of the data on another system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data. | |
| District of Columbia | No district-generated road weather information found on the district transportation agency Web site. | N/A | • CCTV camera images  
• Traffic information |
<p>| Florida            | Florida Department of Transportation | | • CCTV camera |</p>
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
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</tr>
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<td>Florida</td>
<td>Department of Transportation: Florida 511 <a href="http://www.fl511.com">http://www.fl511.com</a></td>
<td>Florida 511 Privacy Policy <a href="http://www.511southflorida.com/PrivacyPolicy.aspx">http://www.511southflorida.com/PrivacyPolicy.aspx</a>  Only &quot;Conditions/Disclaimer&quot; section included here [excerpted].  …The Florida Department of Transportation (FDOT) does not guarantee the reliability, accuracy, quality, timeliness, usefulness, adequacy, completeness or suitability of the Information. You should not assume that your use of the MyFlorida 511 service (the &quot;Service&quot;) will be error free or that the Service will operate without interruption.  You assume all risk arising from your use of the Service, and/or use of the Information retrieved from or sent to you from the Service. FDOT and its licensors shall not be responsible or otherwise liable for any claim, expense, damage, loss, liability, obligation, demand or action, regardless of the nature of the cause of the claim, demand or action, for any direct, indirect, special, incidental, consequential, exemplary, punitive or any other damages arising out of or in connection with the use of or inability to use the Information or the Service, or in reliance on the Information, including any loss of use, lost data, lost business profits, business interruption, personal injury, or any other financial loss, even if FDOT, its contractors, licensors or agents have been informed of the possibility of such loss…</td>
<td>- Other external weather service provider information (embedded) - Traffic information</td>
</tr>
<tr>
<td>Georgia</td>
<td>Georgia Department of Transportation (DOT): Georgia NaviGAtor (511): Weather Monitoring Stations <a href="http://www.georgianavigator.com/weather/">http://www.georgianavigator.com/weather/</a></td>
<td>Georgia Department of Transportation (DOT) Georgia NaviGAtor (511) Terms of Use <a href="http://www.georgia-navigator.com/legal">http://www.georgia-navigator.com/legal</a>  Only &quot;Disclaimer of Warranty; Limitation of Liability,&quot; &quot;Indemnification&quot; and &quot;Third Party Content&quot; sections included here.  Disclaimer of Warranty; Limitation of Liability  You expressly agree that use of the site is at your sole risk. Neither GDOT, its affiliates nor any of their respective employees, agents, third party content providers or licensors warrant that the site will be uninterrupted or error free; nor do they make any warranty as to the results that may be obtained from use of the site, or as to the accuracy or reliability of any information, service or merchandise provided through the site.  The site is provided on an “as is” basis without warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose, other than those warranties which are implied by and incapable of exclusion, restriction or modification under applicable law. Additionally, there are no warranties as to the results obtained from the use of the site.  This disclaimer of liability applies to any damages or injury caused by any failure of performance, error, omission, inaccuracy, interruption, deletion, defect, delay in operation or transmission, computer virus, communication line failure, theft or destruction or unauthorized access to, alteration of, or use of this site, whether for breach of contract, tortious behavior (including strict liability), negligence, or under any other cause of action. You specifically acknowledge that GDOT is not liable for the defamatory, offensive or illegal conduct of other users or</td>
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<td>Hawaii</td>
<td>No state-generated road weather information found on the state DOT Web site.</td>
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<td>Idaho</td>
<td>Idaho Transportation Department (ITD): 511 <a href="http://511.idaho.gov/">http://511.idaho.gov/</a></td>
<td>Idaho Transportation Department (ITD) 511 About 511 <a href="http://511.idaho.gov/about.asp/page=about">http://511.idaho.gov/about.asp/page=about</a> Only “Disclaimer” section included here.</td>
<td>• CCTV camera images • National Weather Service (NWS) link(s) • Traffic information</td>
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Hawaii has no state-generated road weather information found on the state DOT Web site. Idaho Transportation Department (ITD) 511 http://511.idaho.gov/
<table>
<thead>
<tr>
<th>State/ Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>Illinois Department of Transportation: Getting Around Illinois: Roadway Weather Information System <a href="http://www.gettingaroundillinois.com/default.aspx?ql=rwis">http://www.gettingaroundillinois.com/default.aspx?ql=rwis</a></td>
<td>Weather and road conditions change rapidly, and the information reported here should not be used as the only factor in determining whether to travel in a particular area. Motorists are cautioned to be alert to changing circumstances and adjust their driving accordingly. The Idaho Transportation Department provides this information as a public service. Reports are based on the information available at the time of preparation and cannot be guaranteed as to accuracy or timeliness. Actual conditions may vary from those reported. Transportation department field crews provide information to update the system. Additional information comes from the National Weather Service, Ada County Highway District and the Road Weather Information System.</td>
<td>• CCTV camera images • Traffic information</td>
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<td>Illinois Department of Transportation Getting Around Illinois Web Site Disclaimer <a href="http://www.gettingaroundillinois.com/disclaimer.aspx">http://www.gettingaroundillinois.com/disclaimer.aspx</a></td>
<td>The Illinois Department of Transportation and the State of Illinois hereby give notice to all users that these maps and the data included hereon, lack the accuracy required for site-specific uses. Since all boundaries and all data are based on information derived from multiple sources within and outside the Illinois Department of Transportation, the Department of Transportation and the State of Illinois make no representation, guarantee, or warrant, either express or implied, regarding the accuracy of these maps or the data furnished thereon, including, but not limited to, the condition of this product, this product’s merchantability, or this product’s fitness for any particular purpose or use.</td>
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<td>Roadway Weather Information System (RWIS) is a combination of technologies that collects, models, and transmits weather and road conditions. A variety of sensors collect pavement and atmospheric data that can be transmitted to automated warning systems, traffic operation centers, emergency operation centers, and road maintenance facilities for decision support. The primary goal of the system is accomplished by the use of climatological data to develop road and weather information. When storms or severe weather conditions develop, this information becomes a major tool for roadway-related decision makers and especially</td>
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<td>Illinois Department of Transportation: Traveling Public</td>
<td>Illinois Department of Transportation Privacy Notice <a href="http://www.dot.state.il.us/privacy.html">http://www.dot.state.il.us/privacy.html</a></td>
<td>those involved with winter maintenance operations. All of these activities work toward making safer roadway conditions for motorists (sic) in Illinois. The weather data shown reflects conditions at specified locations, for the indicated date and time. The data for that site may not be representative of the entire area. In addition, failure of the sensors, or the equipment processing the information, may occur and produce unreliable information. Therefore, this information should not be used as the only factor in determining whether to travel in a particular area. The Illinois Department of Transportation recommends the motorist check other sources, including weather-related sites on the World Wide Web and media weather reports when making travel plans. Illinois Department of Transportation and Surface Systems, Inc. assume no responsibility for the accuracy and/or use of the weather data and are also not responsible for errors resulting from omitted, misstated or erroneous information or assumptions.</td>
<td>Illinois Department of Transportation: Getting Around Illinois: Roadway Weather Information System</td>
</tr>
<tr>
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<td>Additional Weather-Related Information on State DOT Web Sites</td>
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| Indiana            | Indiana Department of Transportation (INDOT): Road Weather Sensors [http://netservices.indot.in.gov/rwis/](http://netservices.indot.in.gov/rwis/)  
- Weather conditions  
- Pavement conditions  
- Pavement temperatures  
- Subsurface temperatures | not be incorporated in any new version of the publication. If you have obtained information from any of the Illinois Department of Transportation’s web pages from a source other than the Illinois Department of Transportation pages, be aware that electronic data can be altered subsequent to original distribution. Data can also quickly become out of date. It is recommended that careful attention be paid to the contents of any data associated with a file, and that the originator of the data or information be contacted with any questions regarding appropriate use. If you find any errors or omissions, we encourage you to report them on our feedback page.  

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• CCTV camera images  
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**Indiana Department of Transportation (INDOT)**  
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<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| Iowa               | Iowa Department of Transportation (DOT) WeatherviewW Disclaimer http://www.weatherview.dot.state.ia.us/
|                    | Weather Information
|                    | The weather data provided here by the Iowa Department of Transportation only reflects conditions at the specified site. Because of Iowa weather patterns, conditions can vary greatly in a small area; i.e., weather conditions a few miles away from the sensor could be completely different. In addition, failure of the sensors, or the equipment processing the information, may occur and produce unreliable information. Therefore, this information should not be used as the only factor in determining whether to travel in a particular area. The Iowa DOT recommends you check a number of sources, including media weather reports, in making your travel plans. |
|                    | Forecast Information
|                    | Regional and bridge frost forecasts are provided as advisory in nature, and all use, actions, judgements (sic) taken with the these forecasts are the sole responsibility of the user. Meridian Environmental Technology Inc. and the Iowa Department of Transportation assume no responsibility for the accuracy and/or use of the regional weather or bridge frost forecasts by the general public. Meridian Environmental Technology Inc. and the Iowa Department of Transportation are also not responsible for errors resulting from omitted, misstated or erroneous information or assumptions, and users are urged to verify the regional weather and bridge frost forecasts against other forecast sources prior to use. |
| Iowa Department of Transportation (DOT): 511 http://511ia.org/ | Cameras on the Web
|                    | The Iowa DOT is not responsible for inaccurate or outdated information seen on a camera. Due to the unpredictable nature of the weather and its effects on roadways, and because weather, road and traffic conditions changes rapidly, motorists are in the best position to perceive such conditions and adjust their driving accordingly. Those relying on information presented on this Site do so at their own risk, and neither the State of Iowa, Iowa DOT, or any of their employees or agents shall be liable for either the accuracy of this information of any actions taken based on the information. Videotapes of roadways are not retained or archived by the Iowa DOT. |
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<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
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| Kansas             | Kansas Department of Transportation (KDOT): RWIS (Road and Runway Weather Information System): Map and Weather Data http://www.ksdot.org/burcom/ris/generatedreports/weather.asp • Weather conditions • Pavement conditions • Pavement | Site. Any material downloaded or otherwise obtained through the use of the Site is done at your own discretion and risk and you are solely responsible for any damage to your computer system or loss of data that results from the download of any such material, or use of this Site. The Content of the Site is provided "AS IS" and on an "AS AVAILABLE" basis, without warranties of any kind either express or implied. To the fullest extent possible pursuant to applicable law, the Iowa DOT disclaims all warranties, express or implied, including, but not limited to, implied warranties of merchantability, fitness for a particular purpose, non-infringement or other violation of rights. Some jurisdictions do not allow the exclusions or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply. No advice or information, whether oral or written, obtained by you from the Iowa DOT shall be deemed to alter this disclaimer of warranty, or create any warranty. The Iowa DOT attempts to provide the best service reasonably possible, but situations will occur that disrupt service or cause misinformation. The material presented on this Site cannot be guaranteed as to accuracy or timeliness. This information depends on a number of items, including Internet availability, communications networks and computer equipment that are beyond the control of the Iowa DOT and difficult to predict. 

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<p>| Kansas Department of Transportation (KDOT) Disclaimer <a href="http://www.ksdot.org/disclaimer.asp">http://www.ksdot.org/disclaimer.asp</a> | Also linked to Kansas Department of Transportation (KDOT) 511 Traffic and Travel Information Web site at <a href="http://511.ksdot.org/KanRoadPublic_VE/CDRS_Help_Public/disclaimer.asp">http://511.ksdot.org/KanRoadPublic_VE/CDRS_Help_Public/disclaimer.asp</a> [Excerpted] The Kansas Department of Transportation (KDOT) Internet site and the information it contains are provided as a public service by the KDOT. The KDOT makes no claims, promises, or guarantees about the accuracy, completeness, or adequacy of the contents of this Internet site and expressly disclaims liability for errors and omissions in the contents of this Internet site. Unauthorized attempts to modify any information stored on this system or to use the system for any purposes other than its intended purpose are prohibited. |</p>
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
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<td>Kansas</td>
<td>Intended purposes are prohibited… The KDOT makes no warranties, guarantees, or representations of any kind, implied, expressed, or statutory, as to the accuracy of the information, maps, or graphical representation contained in this Internet site or freedom from computer viruses, and assumes no liability or responsibility for any errors or omissions in the content. Under no circumstances will the KDOT be held liable to any party who may choose to rely on information contained in the Internet site. Any person using this Internet site agrees that KDOT will not be liable for any commercial loss; inconvenience; loss of use, time, data, goodwill, revenues, profits, or savings; or any other special, incidental, indirect, or consequential damages in any way related to or arising from use of this Internet site. The KDOT may, in its sole discretion and at any time, modify or discontinue this Internet site. The dissemination of information on this Internet site by the KDOT does not create right or benefit, substantive or procedural, enforceable at law or equity, by a party against the KDOT, its instrumentalities, its officers, its employees, or any other person…</td>
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<td>Kansas Department of Transportation (KDOT): 511 Traffic and Travel Information <a href="http://www.ksdot.org/offTransInfo/511Info/511traffictravel.asp">http://www.ksdot.org/offTransInfo/511Info/511traffictravel.asp</a></td>
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<td>• Link to Kansas Department of Transportation (KDOT) RWIS (Road and Runway Weather Information System) Map and Weather Data</td>
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<td>• Link to Kentucky Transportation Cabinet (KYTC): Road Weather Information System (RWIS)</td>
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<td>Kentucky Transportation Cabinet (KYTC) 511 Traffic and Travel Information Statement included on main page <a href="http://511.ky.gov/">http://511.ky.gov/</a></td>
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<td>This information is provided as a public service of the Commonwealth of Kentucky and is for informational purposes only. It contains those conditions reported to the Cabinet. It is not a guarantee of the safety or condition of any road. Road conditions may be subject to change without notice. It is the responsibility of individual drivers to avoid accidents and to adjust to changing driving conditions as they may occur.</td>
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<p>| Pavement temperatures |
| Subsurface temperatures |
| Weather conditions |</p>
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
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<td>Louisiana Department of Transportation and Development (DOTD) 511 <a href="http://511la.org/">http://511la.org/</a></td>
<td>Only &quot;Disclaimer&quot; section included here. Weather and road conditions change rapidly, and the information reported here should not be used as the only factor in determining whether to travel in a particular area. Motorists are cautioned to be alert to changing circumstances and adjust their driving accordingly. The Louisiana Department of Transportation and Development provides this information as a public service. Reports are based on the information available at the time of preparation and cannot be guaranteed as to accuracy or timeliness. Actual conditions may vary from those reported. Louisiana Department of Transportation and Development personnel and Louisiana State Police provide information to update the system.</td>
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<td>Maine Department of Transportation (MaineDOT); 511 Travel Information Service <a href="http://www.511.maine.gov/">http://www.511.maine.gov/</a></td>
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<td>• CCTV camera images • National Weather Service (NWS) information (embedded) • Traffic information</td>
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<td>Maryland</td>
<td>Maryland Department of Transportation (DOT): CHART (Coordinated Highways Action Response Team) on the Web <a href="http://www.chart.state.md.us/default.asp">http://www.chart.state.md.us/default.asp</a></td>
<td>Maryland Department of Transportation (DOT) CHART (Coordinated Highways Action Response Team) on the Web <a href="http://www.chart.state.md.us/MapNet">http://www.chart.state.md.us/MapNet</a> CHART highway monitoring devices may be off-line at times due to hardware failures, communication problems, or preventative maintenance. We will restore them to an operational mode available via this website as soon as possible. Some devices may be off-line for extended periods of time. All field equipment repairs are scheduled in priority that meets the operational needs of the CHART program.</td>
<td>• CCTV camera images • National Weather Service (NWS) information (embedded) • Traffic information</td>
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<td>State/Jurisdiction</td>
<td>Road Weather Information on State DOT Web Sites</td>
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<td>The Michigan State Police Operations Center (not the state DOT) also shares:</td>
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<td>• Pavement conditions</td>
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<td>Minnesota</td>
<td>Minnesota Department of Transportation (Mn/DOT) 511 Traveler Information (<a href="http://511mn.org/">http://511mn.org/</a>)</td>
<td>Minnesota Department of Transportation (Mn/DOT) 511 Traveler Information About 511 (<a href="http://511mn.org/FAQ.html">http://511mn.org/FAQ.html</a>) Only &quot;Disclaimer&quot; section included here. • Weather and road conditions change rapidly, and the information reported here should not be used as the only factor in determining whether to travel in a particular area. Motorists are cautioned to be alert to changing circumstances and adjust their driving accordingly. • The Minnesota Department of Transportation provides this information as a public service. Reports are based on the information available at the time of preparation and cannot be guaranteed as to accuracy or timeliness. Actual conditions may vary from those reported. • Transportation department field crews provide information to update the system. Additional information comes from the Minnesota State Patrol, the National Weather Service, and the Road Weather Information System.</td>
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<td>Minnesota</td>
<td>Minnesota Department of Transportation (Mn/DOT) 511 Traveler Information (<a href="http://www.dot.state.mn.us/">http://www.dot.state.mn.us/</a>)</td>
<td>Minnesota Department of Transportation (Mn/DOT) Disclaimer, Legal Notices and Policies (<a href="http://www.dot.state.mn.us/information/disclaimer.html">http://www.dot.state.mn.us/information/disclaimer.html</a>) Only &quot;General Disclaimer of Warranties/Liabilities,&quot; &quot;Disclaimer of Warranties for Contractors,&quot; &quot;Disclaimer of Duty to Continue Provision of Data,&quot; and &quot;Maps and Related Data&quot; sections included here. General Disclaimer of Warranties/Liabilities. Applies to all users Neither the State of Minnesota, the Minnesota Department of Transportation nor their employees make any representations or warranties, express or implied, with respect to the use of or reliance on the data provided herewith, regardless of its format or means of transmission. There are no guarantees or representations to the user as to the accuracy, currency, completeness, suitability or reliability of this data for any purpose. THE USER ACCEPTS THE DATA &quot;AS IS&quot; AND ASSUMES ALL RISKS ASSOCIATED WITH ITS USE. The Minnesota Department of Transportation assumes no responsibility for actual, consequential, incidental, special or exemplary damages resulting from, caused by or associated with any user’s reliance on or use of this data, even if appraised of the likelihood of such damages occurring.</td>
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</tr>
</tbody>
</table>
### State/Jurisdiction

<table>
<thead>
<tr>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

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**SCAN Web®**

http://rwis.dot.state.mn.us/

- Weather conditions
- Pavement temperatures
- Pavement conditions
- Subsurface temperatures

This Minnesota road weather information Web site uses SCAN Web®, a Surface Systems, Inc., software user interface for viewing RWIS data. SCAN Web® comes with its own “Terms and Conditions for Access and Use of SSI Weather Forecasts,” which is not included here but is accessible via the referenced Web site.
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| **Missouri**       | Missouri DOT (MoDOT): Traveler Information Map [excerpted]: http://www.modot.org/travelerinfo/Disclaimer.htm | “The purpose of this electronic map is to provide general information to the public about current conditions on selected state routes. It is not a complete list of all incidents and road conditions on all routes and should not be your only source for information. Weather-related road conditions can change in an instant and incidents, like traffic crashes, are included only on major routes maintained by MoDOT. The map is intended to serve as tool for planning your travel route and is not a guaranteed assessment of road conditions or incidents for any given period of time or location. Future work zones listed are pending dates. Factors such as weather can delay start dates or change the nature of the work. MoDOT encourages travelers to check the map again on the day of their trip…” | ● CCTV camera images  
● Traffic information  
● National Weather Service (NWS) data (embedded)  
● Other external weather service provider link(s) |
|                    | Missouri DOT (MoDOT): Road Conditions  
Disclaimer [excerpted]: http://www.modot.org/travelerinfo/Disclaimer.htm | No page-specific disclaimer found. | ● Other external weather service provider information (embedded)  
● Traffic information  
The Mississippi Department of Public Safety (not the state DOT) also shares:  
● Pavement conditions |
| **Montana**        | Montana Department of Transportation (MDT): Montana Road Report Map [excerpted]: http://www.mdt.mt.gov/travinfo/map/mrmap_frame.html | No page-specific disclaimer found. | ● CCTV camera images  
● Traffic information  
● National Weather Service (NWS) data (embedded)  
● Other external weather service provider link(s) |
<table>
<thead>
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<th>Additional Weather-Related Information on State DOT Web Sites</th>
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</thead>
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| Montana Department of Transportation (MDT): Traveler Information | SCAN Web®
  http://rwis.mdt.mt.gov/
- Weather conditions
- Pavement temperatures
- Pavement conditions
- Subsurface temperatures | This Montana road weather information Web site uses SCAN Web®, a Surface Systems, Inc., software user interface for viewing RWIS data. SCAN Web® comes with its own “Terms and Conditions for Access and Use of SSI Weather Forecasts,” which is not included here but is accessible via the referenced Web site. | Montana Department of Transportation (MDT)
Traveler Information
Statement included on main page
http://www.mdt.mt.gov/travinfo/ |
| Montana Department of Transportation (MDT): Traveler Information | The information shown on the above maps and reports is based upon the last “known” condition of the roads and is provided solely as a public service. Actual conditions may change significantly from those displayed. Motorists are cautioned to be alert to changing conditions. | Montana Department of Transportation (MDT)
Disclaimer and Accessibility Information
http://www.mdt.mt.gov/mdt/accessibility.shtml
Only “Disclaimer” section included here. | |
<p>| Safe Travel USA | The Montana Department of Transportation (MDT) provides some road weather information through the Safe Travel USA Web site, which is provided by Meridian Environmental Technology, Inc. and comes with its own “Terms of Use” policy. The policy is not included here but is accessible via the referenced Web site. | | |</p>
<table>
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<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Nebraska</td>
<td>Nebraska Department of Roads (NDOR): 511 Traveler Information Portal <a href="http://www.511nebraska.org/ndortip/index.jsp">http://www.511nebraska.org/ndortip/index.jsp</a> • Pavement conditions</td>
<td>Nebraska Department of Roads (NDOR) Travel and Weather Info Statement included on main page <a href="http://www.dor.state.ne.us/rca/index.htm">http://www.dor.state.ne.us/rca/index.htm</a></td>
<td>• CCTV camera images • National Weather Service (NWS) link(s) • Traffic information • Other external weather service provider link(s)</td>
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<td>Nebraska Department of Roads (NDOR): Travel and Weather Info <a href="http://www.dor.state.ne.us/rca/index.htm">http://www.dor.state.ne.us/rca/index.htm</a> • Link to Nebraska Department of Roads (NDOR): 511 Traveler Information Portal</td>
<td>No page-specific disclaimer found.</td>
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<td></td>
<td>Nebraska Department of Roads (NDOR) <a href="http://www.transportation.nebraska.gov/">http://www.transportation.nebraska.gov/</a> • Link to Nebraska Department of Roads (NDOR): 511 Traveler Information Portal • Link to Nebraska Department of Roads (NDOR): Travel and Weather Info</td>
<td>Nebraska Department of Roads (NDOR) Web Policies and Disclaimers <a href="http://www.nebraskatransportation.org/policies.htm">http://www.nebraskatransportation.org/policies.htm</a> Only &quot;Weather and Road Conditions Disclaimer&quot; section included here [excerpted].</td>
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</table>

511 Data Disclaimer

The forecasts and reports found on this system are based on information compiled from numerous sources. While every attempt is made to be as accurate as possible, weather predicting is not a totally accurate science. Conditions can and do change rapidly.

Road Conditions reported by an Observer may be several hours old, because the main duty of the NDOR field staff during inclement weather is to maintain the roads. They report their observations when they have time.

During inclement weather it is advisable that travel be delayed until highway maintenance activities have been performed. Always drive at speeds reasonable for the conditions of the highway.

DO NOT rely on any of this information as the sole basis for travel decisions. Before you travel in bad weather, check several resources to gather as much information as possible about the weather and road conditions. You and you alone are responsible for making the final decision to travel during periods of bad weather.
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| Nebraska           | The Nebraska Department of Roads is not responsible for the travel decisions YOU make, or for situations that occur as a result of your travel decisions.  
511 by Phone & by Web  
What You’ll Find and What You Won’t  
IMPORTANT: Before making travel plans, ALWAYS check multiple sources for information, especially during times when inclement weather might occur.  
Web 511 and Phone 511 are provided as a service to assist travelers. They are not intended to be the sole basis of travel decisions. Nor is the accuracy of the information guaranteed…  
What you hear on 511 Phone when you select an area is a forecast for that specific segment of road for the next several hours, and any observed road conditions which are input by our NDOR staff in the field. The 511 Web option shows the observed road conditions only, with a link to Weather info from various sources at the top of the page.  
Our NDOR field staff input information throughout the day when necessary. HOWEVER, in times of severe weather, staff may be dealing with deteriorating road conditions and not be available to input data for several hours. Please use the weather report function of 511, and/or listen to local radio and TV weather info as you make your travel decisions. Our NDOR staff will input observed conditions as soon as they are able to do so… |
| Nevada             | Nevada Department of Transportation (DOT) Road Weather Information System (RWIS)  
http://www.nevadadot.com/traveler/rwis/  
- Weather conditions  
Nevada Department of Transportation (DOT)  
Road Weather Information System (RWIS)  
Statement included on each page  
http://www.nevadadot.com/traveler/rwis/  
NDOT provides the foregoing information as a public service. This information is published automatically and cannot be guaranteed as to accuracy or timeliness. This information depends on a number of items, including Internet availability, communications networks, and computer equipment which are beyond the control of the NDOT and difficult to predict.  
Listing of roadway snow and ice conditions is not a guarantee that NDOT has plowed or sanded all of these locations for travelers. Plowing and sanding is generally done to different roads on a basic priority system but that the actual determination of the amount and timing of sanding and plowing of any particular section of highway is up to the judgment of local road maintenance officials based on their experience and local conditions at particular times.  
Weather and road conditions change rapidly, and drivers are in the best position to perceive such conditions and adjust their driving accordingly. Those relying on the foregoing information do so at their own risk, and neither the State of Nevada, the NDOT nor any of their employees or agents shall be liable for either the accuracy of this information nor any actions taken in reliance thereon.  
Safe Travel USA  
http://safetravelusa.com/nv/  
The Nevada Department of Transportation (DOT) provides some road weather information through the Safe Travel USA Web site, which is provided by Meridian Environmental Technology, Inc. and comes with its |
<p>|                    |                                               |                      | • National Weather Service (NWS) link(s)                        |
|                    |                                               |                      | • Traffic information                                           |</p>
<table>
<thead>
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<th>Road Weather Information on State DOT Web Sites</th>
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<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| New Hampshire            | New Hampshire Department of Transportation (NHDOT): 511 Info [excerpted] | • Weather conditions  
• Pavement conditions  
• Pavement temperatures  
• Weather conditions  

The user assumes the entire risk related to the use of this data. The NHDOT is providing this data “as is” and NHDOT disclaims any and all warranties, whether express or implied, including (without limitation) any implied warranties of merchantability or fitness for particular purpose. In no event will NHDOT be liable to you or any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting form (sic) any use or misuse of this data.

New Hampshire Department of Transportation (NHDOT) 511 Info  
Weather Data Disclaimer [excerpted]  

Only “Disclaimer” section included here [excerpted].

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New Jersey Department of Transportation (NJDOT): NJ511 CCTV camera images  

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Please note that this Use Policy is subject to change without notice, and that it reflects the state’s current business practices…

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<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| New Mexico         | New Mexico Department of Transportation (NMDOT): Road Traveler Information [http://nmroads.com](http://nmroads.com)  
- Pavement conditions  
- Weather conditions | No page-specific disclaimer found. | • CCTV camera images  
• National Weather Service (NWS) link(s)  
• Traffic information |
- Pavement conditions  
- Weather conditions | New York State Department of Transportation (NYSDOT)  
The New York State Department of Transportation provides its web site for informational purposes only. The Department makes neither warranties, guarantees nor representations of any kind as to the content, accuracy or completeness of the information contained in either its web site or in the sites of any links it provides herein.  
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New York State Department of Transportation (NYSDOT)/New York State Transportation Federation  
The New York State Transportation Federation provides weather and road condition information as a public service travel planning tool. Because weather information is obtained from other sources and published automatically, the New York State Transportation Federation cannot guarantee its accuracy or timeliness. In addition, the listing of... | • CCTV camera images  
• Traffic information |
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
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<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| New York State Department of Transportation (NYSDOT): 511 New York | About 511 New York
http://www.511ny.org/about.aspx

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• Weather conditions | North Carolina Department of Transportation (NCDOT) Privacy Statement
http://www.ncdot.org/privacystatement/

Only "Disclaimer" section included here. | • CCTV camera images
• National Weather Service (NWS) link(s)
• Traffic information |

winter road conditions is not a guarantee that New York State Transportation Federation partners have plowed or de-iced listed locations. Plowing and de-icing is generally done pursuant to a priority system based on the experience of local roadway maintenance officials and their knowledge of local conditions.

Due to the rapidly changing nature of weather and road conditions, the New York State Transportation Federation, its partners, officers, employees and agents disclaim any responsibility for reliance on winter travel advisory information published on this Web site. Those relying on the accuracy of this information without independent verification do so at their own risk. Motorists are advised to consult local weather forecasts for the areas in which they will be traveling and to plan their drive according to local conditions.

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<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
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</tr>
</thead>
<tbody>
<tr>
<td>North Dakota</td>
<td>North Dakota Department of Transportation (NDDOT): North Dakota Travel Information Map [Excerpted] North Dakota Department of Transportation (NDDOT) Privacy Policy and Disclaimer [Excerpted] <a href="http://www.dot.nd.gov/privacy.html">http://www.dot.nd.gov/privacy.html</a> North Dakota Department of Transportation (NDDOT) North Dakota Road Condition Info Statement included on main page <a href="http://www.dot.nd.gov/roadreport/roadreportinfo.asp">http://www.dot.nd.gov/roadreport/roadreportinfo.asp</a></td>
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<td>• CCTV camera images • National Weather Service (NWS) link(s) • Traffic information</td>
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<td>SCAN Web® [Excerpted] SCAN Web® comes with its own &quot;Terms and Conditions for Access and Use of SSI Weather Forecasts,&quot; which is not included here but is accessible via the referenced Web site.</td>
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<td>North Dakota Department of Transportation (NDDOT): North Dakota Road Condition Info [Excerpted] North Dakota Department of Transportation (NDDOT) North Dakota Road Condition Info Statement included on main page <a href="http://www.dot.nd.gov/roadreport/roadreportinfo.asp">http://www.dot.nd.gov/roadreport/roadreportinfo.asp</a></td>
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The travel information is based upon reports available to the North Dakota Department of Transportation at the time of preparation and are provided solely as a public service. Actual conditions may vary from those reported. Motorists are cautioned to be alert to changing conditions.

See also North Dakota Department of Transportation (NDDOT) Privacy Policy and Disclaimer at http://www.dot.nd.gov/privacy.html (above).
<table>
<thead>
<tr>
<th>State/ Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| Ohio                | Ohio Department of Transportation (ODOT): BuckeyeTraffic.org [http://www.buckeyetraffic.org](http://www.buckeyetraffic.org)  
- Weather conditions  
- Pavement temperatures  
- Pavement conditions  
- Subsurface temperatures | Ohio Department of Transportation (ODOT)  
About Buckeye Traffic  
Statement included in pop-up window accessed via Help/FAQ on main page [http://www.buckeyetraffic.org](http://www.buckeyetraffic.org)/  
Buckeye Traffic ([www.buckeyetraffic.org](http://www.buckeyetraffic.org)) provides Ohio travelers with up-to-date information on road conditions, traffic, construction, and other activity affecting roadways managed by The Ohio Department of Transportation (ODOT). Information provided by this site is updated frequently and comes from a variety of sources, such as pavement sensors and monitoring stations, traffic cameras, and through direct input by ODOT personnel. Whereas the information in this site is kept accurate and up-to-date as possible, Ohio travelers should refer to local and regional information outlets and agencies for the latest information during weather/disaster emergencies. This site is maintained by ODOT. | - CCTV camera images  
- National Weather Service (NWS) link(s)  
- Other external weather service provider link(s)  
- Traffic information |
| Oklahoma            | No state-generated road weather information found on the state DOT Web site. | N/A | - CCTV camera images  
- National Weather Service (NWS) link(s)  
- Other external weather service provider link(s)  
- Traffic information  
_The Oklahoma Department of Public Safety (not the state DOT) also shares:_  
- Pavement conditions |
| Oregon              | Oregon Department of Transportation (ODOT): TripCheck.com [http://www.tripcheck.com](http://www.tripcheck.com)  
- Weather conditions | No page-specific disclaimer found. | - CCTV camera images  
- National Weather Service (NWS) information (embedded)  
- Traffic information |
| Oregon              | Oregon Department of Transportation (ODOT) [http://www.oregon.gov/ODOT/](http://www.oregon.gov/ODOT/)  
- Link to Oregon Department of Transportation (ODOT): TripCheck.com  
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<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
</table>
| Pennsylvania       | Pennsylvania Department of Transportation (PennDOT): Traveler Information [http://www.dot.state.pa.us/TravelerInformation/](http://www.dot.state.pa.us/TravelerInformation/) | **Disclaimer Statements**  
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| Pennsylvania       |                                          | [CCTV camera images](#)  
[National Weather Service (NWS) link(s)](#)  
[Traffic information](#) |                                |
| Rhode Island       | Rhode Island Department of Transportation (RIDOT): Traffic Management Center [http://www.tmc.dot.ri.gov/](http://www.tmc.dot.ri.gov/)  
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[National Weather Service (NWS) information (embedded)](#)  
[Traffic information](#) |                                |
| South Carolina     | South Carolina Department of Transportation (SCDOT): Getting Around in South Carolina [http://www.scdot.org/getting/default.shtml](http://www.scdot.org/getting/default.shtml) | South Carolina Department of Transportation (SCDOT) Internet Disclaimer [excerpted]  
| South Carolina     |                                          | [CCTV camera images](#)  
[Other external weather service provider link(s)](#)  
[Traffic information](#) |                                |
<table>
<thead>
<tr>
<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
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<th>Additional Weather-Related Information on State DOT Web Sites</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Road Weather Information on State DOT Web Sites</td>
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</tr>
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<td>South Dakota</td>
<td>South Dakota Department of Transportation</td>
<td>SCDOT does not approve, endorse, or recommend any proprietary products, processes, or services of any manufacturer, vendors, contractor, company or person mentioned on this site, and shall not be liable for any damages resulting from the sale, use, or application of such company’s products, processes, or services. Prospective purchasers of any material or product should consult with manufacturers for specific technical and application recommendations. <strong>Cameras on the Web</strong> SCDOT is not responsible for inaccurate or outdated weather or road condition information seen on camera due to the unpredictable nature of the weather and its effects on roadways. Because weather, road and traffic conditions change rapidly, drivers are in the best position to perceive such conditions and adjust their driving accordingly. Those relying on information presented on this site do so at their own risk, and the State of South Carolina, SCDOT and any of their employees or agents shall not be liable for the accuracy of this information or any actions taken based on the information. Videotapes of roadways are not retained or archived by the SCDOT. <strong>Purging of information on Web Site</strong> Retention of documents, images, pictures, etc., on the SCDOT web site is controlled exclusively by SCDOT. SCDOT has the sole discretion, without notice to the public, to erase and purge any and all information contained on its web at any time. <strong>Indemnification</strong> If the State of South Carolina or SCDOT is involved in litigation and/or claims, in equity or by law, as a result of your use of our site, you agree to defend, indemnify and hold harmless the State of South Carolina, SCDOT and its affiliates and their respective employees and agents from and against any and all claims, actions, demands, damages, costs, liabilities, losses, and expenses arising out of your use of the site. <strong>Changed Terms</strong> SCDOT has the right at any time to change or modify the terms and conditions applicable to use of the site or to impose new conditions. Any use of the site indicates that you accept the terms and conditions as posted at the time of use. <strong>Miscellaneous</strong> These terms of use constitute the entire agreement of the parties with respect to the subject matter hereof and supersede all previous written or oral agreements between the parties with respect to such subject matter. These terms of use shall be construed in accordance with the laws of the State of South Carolina. No waiver by either party of any breach or default hereunder shall be deemed to be a waiver of any preceding or subsequent breach or default. The section headings used herein are for convenience only and shall not be given any legal import.</td>
<td>South Dakota Department of Transportation (\text{Operations Support Office: Maintenance/Winter Road Condition Report})</td>
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<tr>
<td>(SDDOT): Operations Support Office: Maintenance/Winter Road Condition Report <a href="http://www.sddot.com/Operations/Road_Condition_Report/index.htm">link</a></td>
<td>Statement included on main page <a href="http://www.sddot.com/Operations/Road_Condition_Report/index.htm">link</a> The South Dakota DOT Winter Road Condition Reports are based upon the information available at the time of preparation. They are provided solely as a public service. Actual conditions may vary from those reported. Motorists are cautioned to be alert to changing conditions.</td>
<td>• Traffic information The South Dakota Highway Patrol (not the state DOT) also shares: • Link to South Dakota Department of Transportation (SDDOT): Operations Support Office Maintenance/Winter Road Condition Report • Link to Safe Travel USA</td>
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<tr>
<td>Safe Travel USA <a href="http://safetravelusa.com/sd/">link</a></td>
<td>• Pavement conditions</td>
<td>No related disclaimer found.</td>
<td>• CCTV camera images • Traffic information</td>
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<td>Tennessee Department of Transportation (TDOT): SmartWay Information System <a href="http://www.tdot.state.tn.us/tsw/smartmap.htm">link</a></td>
<td>Pavement conditions No related disclaimer found.</td>
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<tr>
<td>Tennessee Department of Transportation (TDOT): Maintenance Division: Road Weather Information System (RWIS) <a href="http://www.tdot.state.tn.us/weatherdata/">link</a></td>
<td>Pavement conditions Pavement temperatures Subsurface temperatures</td>
<td>No related disclaimer found.</td>
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<td>Texas Department of Transportation (TxDOT): Travel <a href="http://www.txdot.gov/travel/">link</a></td>
<td>Pavement</td>
<td>Texas Department of Transportation (TxDOT) Road Conditions Map Disclaimer <a href="http://www.txdot.gov/travel/map.Disclaimer.htm">link</a> Road conditions can change quickly. Although we try to update</td>
<td>• CCTV camera images • National Weather Service (NWS) link(s)</td>
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<td>information as soon as possible, we are not assuming any responsibility for any damages if you rely on it. We offer no warranty that this report is accurate or complete. By clicking on &quot;I Accept&quot;, I agree to these conditions.</td>
<td>• Other external weather service provider link(s)</td>
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<td>• Link to Road Conditions Map (via disclaimer)</td>
<td><strong>Texas Department of Transportation (TxDOT) Disclaimer</strong> <a href="http://www.txdot.gov/about_us/disclaimer.htm">http://www.txdot.gov/about_us/disclaimer.htm</a></td>
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| Utah                | Utah Department of Transportation (UDOT): CommuterLink http://www.commuterlink.utah.gov/ • Weather conditions • Pavement conditions | **Utah Department of Transportation (UDOT) CommuterLink Traveler Information Disclaimer** http://www.commuterlink.utah.gov/disclaimer.aspx

Traveler information is provided by UDOT as a public service. Information is published automatically; accuracy or timeliness cannot be guaranteed. Availability of information is dependent upon several factors that are beyond the control of UDOT, such as Internet service, communications networks, and computer equipment.

While information is designed to be delivered in real-time, the website is only monitored Monday-Friday, 7 a.m. to 6 p.m., excluding state holidays.

Information listings of roadway snow and ice conditions are not a guarantee that UDOT has plowed or salted those areas. Plowing and salting is done based on a priority system, and is determined by local road maintenance officials according to conditions at a given time.

Weather and road conditions change swiftly; therefore, drivers are in the best position to analyze conditions and adjust their driving accordingly. Those relying on the abovementioned information do so at their own risk. The state of Utah, UDOT or any of their employees are not liable for the accuracy of this information or any actions taken in reliance thereon.

| Utah Department of Transportation (UDOT) http://www.dot.state.ut.us/main/?p=100:1:0;NO;T,V:1%2C | Utah.gov Terms of Use http://www.utah.gov/disclaimer.html

Only "Accuracy, Changes, and Continuity of Service," "No Warranties," and "Assumption of Risk of Use" sections included here.

INFORMATION ON THE STATE OF UTAH’S COMPUTER SYSTEMS IS MADE AVAILABLE AS A PUBLIC SERVICE, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND, AND IS SUBJECT TO THE FOLLOWING DISCLAIMERS:

Accuracy, Changes, and Continuity of Service

The State of Utah (State) tries to ensure that the information made available on Utah.gov Web sites is accurate and complete. Due to factors beyond the control of the State, however, it cannot guarantee against unauthorized modifications of information or errors made in inputting and posting data. The State may make changes to a Web page at any time. | • CCTV camera images • National Weather Service (NWS) information (embedded) • Traffic information |
### Vermont

**Vermont Department of Transportation (VTrans):**

**Vermont Travel Information Service (511)**

http://511.vermont.gov/

- Pavement conditions
- Pavement temperatures
- Weather conditions

**Vermont Department of Transportation (VTrans):**

**Vermont Travel Information Service (511)**

Weather Data Disclaimer

http://carsprogram.org/VT/RWIS/disclaimer.html

The user assumes the entire risk related to the use of this data. VTrans is providing this data "as is" and VTrans disclaims any and all warranties, whether express or implied, including (without limitation) any implied warranties of merchantability or fitness for particular purpose. In no event will VTrans be liable to you or any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting form any use or misuse of this data.

**Vermont Department of Transportation (VTrans)**

**Vermont Travel Information Service (511)**

Disclaimer [excerpted]

http://www.511vt.com/disclaimer.htm

**Limitation of Liability**

The State attempts to maintain the highest accuracy of content on its web site. Any errors, or omissions should be reported for investigation.

The State makes no claims, promises or guarantees about the absolute accuracy, completeness, or adequacy of the contents of this web site and expressly disclaims liability for errors and omissions in the contents of this web site. No warranty of any kind, implied, expressed or statutory, including but not limited to the warranties of non-infringement of third party rights, title, merchantability, fitness for a particular purpose and freedom from computer virus, is given with respect to the contents of

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<th>State/Jurisdiction</th>
<th>Road Weather Information on State DOT Web Sites</th>
<th>Disclaimer Statements</th>
<th>Additional Weather-Related Information on State DOT Web Sites</th>
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</table>
| Vermont            | Vermont Department of Transportation (VTrans): Vermont Travel Information Service (511) [Weather Data Disclaimer](http://carsprogram.org/VT/RWIS/disclaimer.html) | The State disclaims any express or implied warranties related to making its computer system available for public use, and for any materials, information, graphics, products, or processes contained within its computer system. It makes no warranty, express or implied, nor assumes any responsibility for the use of information on the State’s Web sites or computer system/s, or for the computer system’s fitness for any general or particular purpose. Nor does the State warrant that the use of information on the State’s system will not infringe or violate the rights of others. The public is granted access to information on the State’s computer system on a strictly “as is” basis. The State denies responsibility for the conduct of its users. | Vermont Department of Transportation (VTrans) [Vermont Travel Information Service (511) [Disclaimer](http://www.511vt.com/disclaimer.htm) [Limitation of Liability]]

- CCTV camera images
- National Weather Service (NWS) link(s)
- National Weather Service (NWS) information (embedded)
- Traffic information
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<td>Virginia</td>
<td>Virginia Department of Transportation (VDOT): 511 Virginia <a href="http://va511.com/">http://va511.com/</a> • Pavement conditions</td>
<td>Virginia Department of Transportation (VDOT) 511 Virginia About 511 <a href="http://va511.com/Other511.aspx?r=1">http://va511.com/Other511.aspx?r=1</a> Only &quot;Disclaimer&quot; section included here. Weather and road conditions change rapidly, and the information reported here should not be used as the only factor in determining whether to travel in a particular area. Motorists are cautioned to be alert to changing circumstances and adjust their driving accordingly. The Virginia Department of Transportation (VDOT) provides this information as a public service based upon data collected from VDOT crews, contractors, Virginia State Police dispatch systems, the National Weather Service and through partnerships with other agencies and public transportation entities. Reports are based on the information available at the time of publication and cannot be guaranteed as to accuracy or timeliness. Actual conditions may vary from those reported, though every effort is made to keep information comprehensive and current.</td>
<td>• CCTV camera images • National Weather Service (NWS) information (embedded) • Traffic information</td>
</tr>
<tr>
<td>Washington</td>
<td>Washington Department of Transportation (WSDOT): Traveler Information <a href="http://www.wsdot.wa.gov/traffic/">http://www.wsdot.wa.gov/traffic/</a> • Pavement temperatures • Pavement conditions • Weather conditions</td>
<td>Washington Department of Transportation (WSDOT) Traveler Information Disclaimer <a href="http://www.wsdot.wa.gov/Policy/disclaimer.htm">http://www.wsdot.wa.gov/Policy/disclaimer.htm</a> WSDOT provides this information as a public service. This information is published automatically and cannot be guaranteed as to accuracy or timeliness. This information depends on a number of items, including Internet availability, communications networks, and computer equipment which are beyond the control of the WSDOT and difficult to predict. Some of the information contained on this website is designed to deliver real time information 24 hours a day 7 days a week. However, this website is only monitored M-F, 8-5 with the exception of state holidays. Listing of roadway snow and ice conditions is not a guarantee that WSDOT has plowed or sanded all of these locations for travelers. Plowing and sanding is generally done to different roads on a basic priority system but that the actual determination of the amount and timing of sanding and plowing of any particular section of highway is up to the judgment of local road maintenance officials based on their experience and local conditions at particular times. Weather and road conditions change rapidly, and drivers are in the best position to perceive such conditions and adjust their driving accordingly. Those relying on the foregoing information do so at their own risk, and neither the State of Washington, the WSDOT nor any of their employees or agents shall be liable for either the accuracy of this information nor any actions taken in reliance thereon.</td>
<td>• CCTV camera images • National Weather Service (NWS) information (embedded) • National Weather Service (NWS) link(s) • Other external weather service provider link(s) • Traffic information</td>
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<td>West Virginia</td>
<td>West Virginia Department of Transportation (WVDOT): Road Conditions</td>
<td>West Virginia Department of Transportation (WVDOT) Disclaimer [Excerpted] <a href="http://www.wvdot.com/disclaimer.htm">http://www.wvdot.com/disclaimer.htm</a> The WVDOT Internet site and the information it contains are provided</td>
<td>• National Weather Service (NWS) link(s)</td>
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<td>Wisconsin</td>
<td><a href="http://www.511wi.gov/web/Map.aspx">Wisconsin Department of Transportation (WisDOT): 511 Travel Information</a></td>
<td>as a public service by the West Virginia Department of Transportation (WVDOT). Unauthorized attempts to modify any information stored on this system or to use the system for any purposes other than its intended purposes are prohibited… The WVDOT makes no warranties, guarantees, or representations as to the accuracy of information or timeliness of any information contained in this Internet site, and assumes no liability or responsibility for any errors or omissions in the content. Under no circumstances will the WVDOT be held liable to any party who may choose to rely on information contained in the Internet site. Any person or entity that relies on any information obtained from this web site does so at their own risk. WVDOT may, in its sole discretion and at any time, modify or discontinue this Internet site. The dissemination of information on this Internet site by the WVDOT does not create any right or benefit, substantive or procedural, enforceable at law or equity, by a party against the Department, its instrumentalities, its officers, its employees, or any other person…</td>
<td><a href="http://www.dot.wisconsin.gov/travel/gis/rwis.htm">Wisconsin Department of Transportation (WisDOT): Road Weather Information System (RWIS)</a></td>
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<td><a href="http://www.wvdot.com/14_roadconditions/14_roadconditions.cfm">Pavement conditions</a></td>
<td>Text not included here, as this disclaimer relates only to external linkages and endorsements.</td>
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<td>State/Jurisdiction</td>
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<td>Wyoming</td>
<td>Wyoming Department of Transportation (WYDOT): Wyoming Travel Information Service [excerpted] [<a href="http://www.wyorgetown.info/">http://www.wyorgetown.info/</a>]</td>
<td>caused by any failure of performance, error, omission, interruption, deletion, defect, delay in operation or transmission, computer virus, communication line failure, theft or destruction or unauthorized access to, alteration of, or use of record, whether for breach of contract, tortious behavior, negligence or under any other cause of action.</td>
<td>• CCTV camera images</td>
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<td>Pavement conditions</td>
<td><strong>Disclaimer of Warranties and Accuracy of Data</strong></td>
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<td>Weather</td>
<td>Although the data found using the State of Wisconsin’s access systems have been produced and processed from sources believed to be reliable, no warranty, expressed or implied, is made regarding accuracy, adequacy, completeness, legality, reliability or usefulness of any information. This disclaimer applies to both isolated and aggregate uses of the information. WisDOT provides this information on an &quot;as is&quot; basis. All warranties of any kind, express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, freedom from contamination by computer viruses and non-infringement of proprietary rights are disclaimed. Changes may be periodically made to the information herein; these changes may or may not be incorporated in any new version of the publication. If you have obtained information from any of WisDOT’s Web pages from a source other than WisDOT pages, be aware that electronic data can be altered subsequent to original distribution. Data can also quickly become out of date. It is recommended that careful attention be paid to the contents of any data associated with a file, and that the originator of the data or information be contacted with any questions regarding appropriate use. If you find any errors or omissions, we encourage you to report them to us. Special attention should be paid to legal materials on this site. The laws governing traffic and highways change frequently. Persons doing legal research and advised to consult local counsel and current version of statutes, regulations and case law to confirm accuracy of any information on this site.</td>
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<td><strong>Disclaimer of Duty to Continue Provision of Data</strong></td>
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<td>Due to the dynamic nature of the Internet, resources that are free and publicly available one day may require a fee or restricted access the next, and the location of items may change as menus, homepages, and files are reorganized. The user expressly agrees that use of WisDOT’s Web site is at the user’s sole risk. The state does not warrant that the service will be uninterrupted or error free. The documents and related graphics published on this server could contain technical inaccuracies or typographical errors. Changes are periodically added to the information herein. The state and/or its respective agencies and programs may make improvements and/or changes in the information and/or programs described herein at any time.</td>
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<td>conditions</td>
<td>hours a day, seven days a week. Timely delivery of data and products from this server through the Internet is not guaranteed. This server maintains a current database of meteorological data supplied by WYDOT Roadway Information System sites. The data displayed is the most current data available from the system at the time of the system polling. <em>Use of Data and Products</em> The user assumes the entire risk related to its use of this data. WYDOT is providing this data &quot;as is,&quot; and WYDOT disclaims any and all warranties, whether express or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will WYDOT be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of this data…</td>
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NOTES

1. Citations are omitted in the Executive Summary, except for direct quotes. Complete citations and references are available in the main text of the full report.
7. For the purposes of this report, state department of transportation (DOT) is synonymous with department of roads, department of highways, transportation cabinet, transportation agency, highway agency or other equivalent terms.
8. Besides the experts listed here, a few others shared information on a confidential basis.
12. Federal Highway Administration, How Do Weather Events Impact Roads?
14. Federal Highway Administration, How Do Weather Events Impact Roads?


29. Pisano et al., *Weather Information*.


34. Tarleton, *Synergy* [Paper].


National Conference of State Legislatures
41. Maccubbin et al., *Intelligent Transportation System Benefits*.
44. Noblis, *Environmental Sensor Stations*.
61. Ibid.
67. Ibid.
69. Some project participants also identified this concern on a confidential basis.
71. Ibid.
72. On the other hand, however, archived RWIS data might also act as evidence to support a DOT’s decisions in such a case. This is discussed further on page 33.
73. In a related example, in the interview research for this report, one expert recalled a case in which a plaintiff argued that a DOT should have used anti-icing applications because anti-icing could be considered standard practice in the United States. Nelson, telephone conversation, July 1, 2009.
75. For more information about the RWIS-related Pennsylvania case, see note 93. Because so few cases were found with any mention of RWIS, additional research—including two follow-up survey questions and further Westlaw and LexisNexis searches—expanded the scope of the research to include cases relating to the dissemination of any other kind of real-time Traveler information such as 511 traffic information, especially over the Internet. No relevant cases were reported or found using these broadened search criteria.
79. Ibid., 1-10.
81. Kuemmel, Managing Roadway Snow and Ice Control.
82. Ibid.
83. Thomas, Tort Liability, 2-14, footnotes omitted.
85. Thomas, Tort Liability.
86. Ballard et al., Caltrans RWIS.
87. Standler, Tort Liability.
89. National Conference of State Legislatures, Survey Data.
91. Vance, Supplement, 3; see also Kuemmel, Managing Roadway Snow and Ice Control.
93. In addition, in 1998, the Pennsylvania DOT reported it faced a claim because RWIS was not installed at a location where an accident took place. See: American Association of State Highway and Transportation Officials, 1998 AASHTO Lead States workshop (Washington, D.C.: American Association of State Highway and Transportation Officials, 1998), http://leadstates.transportation.org/rwis/RWIS_procdngs.stm. However, no further information about this was found through Lexis Nexis.
or Westlaw, nor in interviews with PennDOT personnel. PennDOT legal counsel and AASHTO did not respond to requests for this information.

94. Ballard et al., Caltrans RWTS.

97. Thomas, Tort Liability; Vance, Supplement.
98. Thomas, Tort Liability, p. 2-15 (footnotes omitted).
99. Thomas, Tort Liability.
100. Best and Barnes, Basic Tort Law; Craig, Civil Actions.
101. Craig, Civil Actions.
103. Thomas, Tort Liability.
104. Craig, Civil Actions; McCarthy, “Varying Standards.”
105. Craig, Civil Actions.
106. Craig, Civil Actions; Thomas, Tort Liability.
108. For example, the public duty doctrine may also play a role in defining the circumstances under which a public entity may be held liable. This doctrine, which developed in case law, provides that a government entity can be held liable only if the duty breached was owed to the injured person as an individual (a “special duty”) and not merely to the public at large (a “public duty”). The applicability of the public duty doctrine—and judicial adherence to it—varies by state, based on a complex interaction of statutory and case law. For more on this issue, see: Kenneth G. Nellis, The Public Duty Defense to Tort Liability (Washington, D.C.: National Cooperative Highway Research Program, 1990).
111. Standler, Tort Liability.
112. Thomas, Tort Liability.
113. Klein and Pielke, “Public Sector Forecasts.”
114. Best and Barnes, Basic Tort Law; Craig, Civil Actions; Klein and Pielke, “Public Sector Forecasts;” Thomas, Tort Liability.
115. Craig, Civil Actions.
117. Ibid., 1798.
118. Best and Barnes, Basic Tort Law; Craig, Civil Actions.
121. Ind. Code §34-13-3-3.
123. Best and Barnes, Basic Tort Law; Craig, Civil Actions.
124. Craig, Civil Actions; McCarthy, “Varying Standards;” Thomas, Tort Liability.
126. Office of General Counsel for Atmospheric and Space Services and Research, Summary of Honour Brown; Klein and Pielke, “Public Sector Forecasts.”


129. Office of General Counsel for Atmospheric and Space Services and Research, Summary of Honour Brown, ¶3; 790 F.2d 199 (1st Cir. 1986), quoted in Office of General Counsel for Atmospheric and Space Services and Research, Summary of Honour Brown; Klein and Pielke, “Public Sector Forecasts;” Loper, “Red Sky.”


132. In addition to the cases listed here, the National Weather Service (NWS) was also found negligent in at least one case, Springer v. U.S. (641 F. Supp. 913 [D.S.C. 1986]), in which a failure of the NWS and FAA to provide accurate real-time weather information resulted in a pilot’s death, However, because this decision cited the lower court in Brown, which was later overturned by the appellate court, it is unclear whether this law is still valid (see Standler, Tort Liability).


135. Standler, Tort Liability.

136. 373 F.2d 227 (2d Cir. 1967) and 982 F.2d 1456, 1462, 1464 (10th Cir. 1992), respectively; both cases are quoted and described in Standler, Tort Liability.

137. Craig, Civil Actions.

138. Standler, Tort Liability.


142. Klein and Pielke, “Public Sector Forecasts.”

143. N.J. Rev. Stat. §59:2-3 (c), (d).

144. Thomas, Tort Liability, 4-8.


146. Thomas, Tort Liability.


149. 59 Alaska Stat. §09.50.250.


152. Idaho Code §6-904.


156. Office of General Counsel for Atmospheric and Space Services and Research, Summary of Honour Brown, ¶6.

157. Ibid.; Klein and Pielke, “Public Sector Forecasts.”


159. Klein and Pielke, “Public Sector Forecasts.”

160. Standler, Tort Liability.

161. Craig, Civil Actions.


163. Colo. Rev. Stat. §24-10-106(d)(l); “…Nothing in this subparagraph (l) shall preclude a particular dangerous accumulation of snow, ice, sand, or gravel from being found to constitute a dangerous condition in the surface of a public roadway when the entity fails to use existing means
available to it for removal or mitigation of such accumulation and when the public entity had actual notice through the proper public official responsible for the roadway and had a reasonable time to act.” See also Appendix C.

164. Craig, Civil Actions.
165. Craig, Civil Actions; Vance, Supplement.
166. New Hampshire’s weather immunity statute (N.H. Rev. Stat. Ann. §230:81) is located in a section of the state statutes relating to the liability of the Department of Transportation, not in the state tort claims act.

175. Kuemmelm, Managing Roadway Snow and Ice Control, 7–8.
176. Ballard et al., Caltrans RWIS.
177. Maccubbin et al., Intelligent Transportation System Benefits.

183. National Research Council of the National Academies, Where the Weather Meets the Road.
186. Goodwin, Best Practices.
187. Maccubbin et al., Intelligent Transportation System Benefits.
188. Ballard et al., Caltrans RWIS.
189. Special thanks to Lynette Goodwin of Noblis for her help with the initial research for this section and Appendix D, especially by providing access to an earlier compilation of online disclaimers she had prepared for the Federal Highway Administration Road Weather Management Program: Lynette Goodwin, Disclaimer Statements on State Agency Websites (Washington, D.C.: Noblis, 2007).
192. Arthur Best, University of Denver, e-mail message to author, Aug. 11, 2009; Sandeen, “Sense and Nonsense;” Standler, Tort Liability.
194. Ibid.
195. Ballard et al., Caltrans RWIS.
196. Sandeen, “Sense and Nonsense.”

199. Bruce Coltharp, Colorado Department of Transportation, e-mail message to author, June 30, 2009.

200. Ballard et al., *Caltrans RWIS: Kansas City Scout Agreement*.

201. Bruce Coltharp, Colorado Department of Transportation, e-mail message to author, Sept. 28, 2009.


208. Ballard et al., *Caltrans RWIS*.

209. Ibid.

210. Ibid.


214. Ballard et al., *Caltrans RWIS*.


220. Tina Greenfield Huitt, Iowa DOT, e-mail message to author, July 6, 2009; National Conference of State Legislatures, *Survey Data*.

221. Federal Highway Administration, *An Introduction to Standards*.


226. New York State Department of Transportation, *Request for Information*.


228. National Conference of State Legislatures, *Survey Data*.


232. Ballard et al., *Caltrans RWIS, ES-14*.

233. Ibid.

234. Klein and Pielke, “Public Sector Forecasts.”


239. Ibid.


244. Ibid.; Giraud et al., *Development of a Risk Management System*.


248. Ibid.


250. Shi et al., *Evaluation of Utah DOT RWIS*.


Notes


258. Tarleton, *Synergy* [Paper].


261. Ibid.

262. Craig, *Civil Actions*; Vance, *Supplement*.


271. However, two bills were introduced in Minnesota in 2009 that proposed to remove the single occurrence statutory cap on damages (Senate Bill 93 and House Bill 103). These bills also were to carry over to 2010.


273. Sources for Appendix B include Craig, *Civil Actions*; Morton, *State Tort Claims Acts*; National Conference of State Legislatures, Survey Data; and original research using Westlaw.

274. Fla. Stat. Ann. §768.28 places dollar limits (by person and by occurrence) on judgments awarded against the state, but judgments that exceed those amounts can be paid—and can only be paid—in part or in whole by further act of the legislature.

275. Ky. Rev. Stat. §44.073: “(13) The preservation of sovereign immunity referred to in subsections (11) and (12) of this section includes, but is not limited to, the following: (a) Discretionary acts or decisions… (c) Ministerial acts…”

National Conference of State Legislatures
276. Md. State Government Code Ann. §12-104 allows the state treasurer to pay from the State Insurance Trust Fund all or part of that portion of a tort claim which exceeds the statutory limitation on liability.

277. Mich. Comp. Laws Ann. §691.1407(2): “Except as otherwise provided in this section, and without regard to the discretionary or ministerial nature of the conduct in question, each officer and employee of a governmental agency, each volunteer acting on behalf of a governmental agency, and each member of a board, council, commission, or statutorily created task force of a governmental agency is immune from tort liability for an injury to a person or damage to property caused by the officer, employee, or member while in the course of employment or service or caused by the volunteer while acting on behalf of a governmental agency if all of the following are met: (a) The officer, employee, member, or volunteer is acting or reasonably believes he or she is acting within the scope of his or her authority. (b) The governmental agency is engaged in the exercise or discharge of a governmental function. (c) The officer’s, employee’s, member’s, or volunteer’s conduct does not amount to gross negligence that is the proximate cause of the injury or damage.”

278. Neb. Rev. St. §81-8,224 requires any portion in excess of the statutory limit of an award or judgment against the state to be reviewed by the legislature and paid only by special legislative appropriation.

279. N.M. Stat. Ann. §41-4-2: “The Tort Claims Act shall be read as abolishing all judicially-created categories such as “governmental” or “proprietary” functions and “discretionary” or “ministerial” acts previously used to determine immunity or liability. Liability for acts or omissions under the Tort Claims Act shall be based upon the traditional tort concepts of duty and the reasonably prudent person’s standard of care in the performance of that duty. The Tort Claims Act in no way imposes a strict liability for injuries upon governmental entities or public employees. Determination of the standard of care required in any particular instance should be made with the knowledge that each governmental entity has financial limitations within which it must exercise authorized power and discretion in determining the extent and nature of its activities.”

280. N.D. Cent. Code §32-12.2-02 requires any portion in excess of the statutory limit of a judgment against the state to be paid only by special legislative appropriation.


282. See also notes 281 and 283. Oregon Senate Bill 311 (2009) makes significant changes to Or. Rev. Stat. §30.260 to §30.300 and repeals Or. Rev. Stat. §30.270 (where provisions regarding limitations on damages were previously located); however, it retains the prohibition on punitive damages.

283. See also notes 281 and 282. Among other changes, Oregon Senate Bill 311 (2009) repeals Or. Rev. Stat. §30.270 (where provisions regarding limitations on damages were previously located), increases the limitations on damages for claims against the state and provides for an annual increase in those limitations after 2015.

284. Pa. Cons. Stat. Ann. tit. 42, §8528 does not explicitly prohibit punitive damages, but instead limits the kind of damages that are recoverable to 1) past and future loss of earnings and earning capacity, 2) pain and suffering, 3) medical and dental expenses, 4) loss of consortium and 5) property losses except those relating to potholes and other dangerous conditions (pursuant to §8522[b][5]).

285. S.D. Codified Laws Ann. §21-32-17: “Except as provided in §21-32-16, any employee, officer, or agent of the state, while acting within the scope of his employment or agency, whether such acts are ministerial or discretionary, is immune from suit or liability for damages brought against him in either his individual or official capacity.” S.D. Codified Laws Ann. §21-32-16: “To the extent such liability insurance is purchased pursuant to §21-32-15 and to the extent coverage is afforded thereunder, the state shall be deemed to have waived the common law doctrine of sovereign immunity and consented to suit in the same manner that any other party may be sued.”

286. Va. Code §8.01-195.3: “However, except to the extent that a transportation district contracts to do so pursuant to §15.2-4518, neither the Commonwealth nor any transportation district shall be liable for interest prior to judgment or for punitive damages.”
287. Wyo. Stat. §1-39-101(b): “In the case of the state, this act abolishes all judicially created categories such as ‘governmental’ or ‘proprietary’ functions and ‘discretionary’ or ‘ministerial’ acts previously used by the courts to determine immunity or liability. This act does not impose nor allow the imposition of strict liability for acts of governmental entities or public employees.”

288. See note 189.
REFERENCES


References


Road weather information systems are advanced technologies that provide state departments of transportation with unprecedented access to detailed, timely, roadway-relevant weather information such as whether roads and bridges are becoming icy, whether rain is reaching the ground, or whether dust that is stirred up on a windy day is affecting visibility for motorists. Transportation agencies use road weather information when making decisions that affect public safety, mobility and productivity—plowing roads, treating ice, closing lanes or warning travelers about adverse weather conditions.

*Weather or Not? State Liability and Road Weather Information Systems (RWIS)* helps state legislators and departments of transportation understand liability concerns related to the use of road weather information systems. It also provides a menu of strategic options for addressing those concerns, illustrated by real-life examples from the states. Information in the report that explores broader issues of liability and sovereign immunity for state governmental entities can be of general use to state decision makers. Relevant statutes and legal statements for all 50 states and the District of Columbia are included.

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