Weather threatens surface transportation nationwide and impacts roadway mobility, safety, and productivity. There is a perception that transportation managers can do little about weather. However, three types of mitigation measures—control, treatment, and advisory strategies—may be employed in response to environmental threats and impacts. For example, this may include road weather and traffic surveillance to monitor threats to system performance, arterial and freeway management to modify roadway capacity, as well as dissemination of advisory information to influence traveler decisions and driver behavior. These management practices are employed in response to various weather threats including fog, high winds, snow, rain, ice, flooding, tornadoes, hurricanes, and avalanches.

This CD contains case studies of systems and applications employed by traffic managers, emergency managers, and winter maintenance managers to improve roadway operations under inclement weather conditions. Each case study demonstrates the entire information thread, from environmental information to system performance information. This information thread begins with the observation and prediction of weather, road surface, traffic, and other environmental conditions to identify threats to transportation system performance. Based upon credible threat information, managers employ mitigation strategies that improve transportation outcomes. The CD also contains a list of acronyms, online resources, and a listing of road weather publications.

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- California DOT Motorist Warning System
- City of Palo Alto, California Flood Warning System
- City of Aurora, Colorado Maintenance Vehicle Management System
- Florida DOT Motorist Warning System
- City of Clearwater, Florida Weather-Related Signal Timing
- Idaho DOT Anti-icing/Deicing Operations
- Idaho DOT Motorist Warning System
- Minnesota DOT Access Restriction

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- Nevada DOT High Wind Warning System
- New Jersey Turnpike Authority Speed Management
- City of New York, New York Anti-Icing/Deicing System
- City of Charlotte, North Carolina Weather-Related Signal Timing
- Oklahoma Environmental Monitoring System

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- Utah DOT Fog Dispersal Operations
- Utah DOT Low Visibility Warning System
- Virginia DOT Weather-Related Incident Detection
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- Wyoming DOT Avalanche Warning System

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- ATIS: What Do ATIS Customers Want?
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- Adverse Weather Traffic Signal Timing
- An Assessment of Select Metropolitan Washington Public Safety and Transportation Agencies User Needs
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- Application of Jetting Technology to Pavement Deicing
- Application of RWIS in the Western U.S.
- Application of ATIS Message Standard
- Application of ITS for Winter Maint.
- Are Simplistic Weather-Related Motorist Warning System “All Wet”?

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- Closing the Data Gap: Guidelines for Quality ATIS Data
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- Development of Road Temperature Sensing System Using Optical Fiber
- Documentation and Assessment of MN/DOT Gate Operations
- Dynamic Messaging
- Economic Evaluation of Advanced Winter Highway Maintenance Strategies
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- Efficacy and Economic Efficiency for Thawing Agents Spray Systems: Final Report
- Enhancements to the Virtual Weather Station Methodology
- Evaluation of a Fixed Anti-Icing Spray Technology (FAST) System
- Evaluation of Caltrans District 10 Automated Warning System: Year Two Progress Report
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- Extraction of the Slipperiness Component From Weather and Traffic Data for Winter Maintenance Operations
- Flood Warnings On-Line
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- Getting Clear on Fog-Related Crashes in Tampa Bay
- A Guide for Selecting Anti-Icing Chemicals, V 1.0

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- Highway Deicing: Comparing Salt and Calcium Magnesium Acetate (Special Report: 235)
- Idaho Storm Warning System Op. Test
- Identification and Documentation of Weather and Road Condition Dissemination Devices and Data Formats
- Identification of Trigger Wind Velocities to Cause Vehicle Instability
- Improving Public Response to Hurricane Flooding
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- ITS Applications for Snow and Ice Control
- ITS Institutional Issues: A Maintenance/Operations Perspective
- Life Cycle Cost-Benefit Model for RWIS
- Loss of Life in the United States Associated with Recent Atlantic Tropical Cyclones
- Management of Roads in Winter Using CCTV Cameras
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- Multi-Functional Deployment of AHS Key Technology
- Operator Interface Design of a Lane Awareness System for Snow Removal Operations
- Optimal Control of Variable Speed Limits and Road Lighting Based on Predicted Short Term Socio-Economic Impacts
- Percostation for Real Time Monitoring Moisture Variations, Frost Depth and Spring Thaw Weakening
- A Portable Method to Determine Chloride Concentration on Roadway Pavements
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- Proceedings for the Weather Information for Surface Transportation: Delivering Improved Safety and Efficiency for Tomorrow
- Proceedings of the Workshop on Strategy for Providing Atmospheric Information
- Real Time Forecasting of Hurricane Winds and Flooding
- Remote Sensing and Emergency Management for Coastal Environmental Disasters
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This is a collection of publications related to road weather management. You can view publication titles, abstracts and source information.

Other Resources
This is a listing of web sites that contain information related to road weather management.

Titles (listed alphabetically)
- RWIS: Some Findings on How RWIS Information Should be Disseminated
- Road Weather Requirements: Exec. Sum.
- Rural Freeway Management During Snow Events—ITS Application
- Rural ITS Applications for Snow Maint. and Winter Hazard Mitigation
- Signs of Rain
- Snow & Ice Control Operations
- Snow Emergency Vehicle Routing with Route Continuity Constraints
- Socioeconomic Impacts of Heavy Precipitation in the United States

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- Southeast United States Hurricane Evacuation Traffic Study
- State of the Practice and Review of the Literature: Survey of Fog Countermeasures Planned Or in Use by Other States
- Surface Transportation Weather Apps.
- Surface Transportation Weather Decision Support Requirements
- Synthesis of Road Weather Forecasting
- System Monitors Flood-Prone Creeks
- Temperature and Humidity Effects on the Co-Efficient of Friction Value After Application of Liquid Anti-Icing Chemicals
- Testing the Adverse Visibility Information System Evaluation (ADVISE)—Safer Driving in Fog

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Titles (listed alphabetically)
- The Advanced Transportation Weather Information System (ATWIS)
- The Effect of Variable Message Signs on the Relationships Between Mean Speeds and Speed Derivations
- The Effect of Weather on Free Flow Speed
- The Measurement and Theory of Tire Friction on Contaminated Surfaces
- The Use of Abrasives in Winter Maintenance: Final Report of Project TR 434
- The Use of Mobile Video Data Collection Equipment to Investigate Winter Weather Vehicle Speeds
- Traffic Modeling Framework for Hurricane Evacuation
- TRAVELAID

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- Use of Pavement Temperature Measurements for Winter Maintenance Decisions
- Variable Speed Control: Technologies and Practice
- Video Cameras Focus on Visibility
- Vision and Challenges of Integrating Traffic Management and Emergency Response Systems
- Weather Based Traffic Management Applications in Nevada
- Weather in the Info-Structure
- Weather Information for Surface Transportation (WIST I): Establishing the National Needs and Requirements
- Weather Information for Surface Transportation (WIST II): Establishing the National Needs and Requirements
- Weather: A Research Agenda for Surface Transportation Operations

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Titles (listed alphabetically)
- Weather: Making it a National Priority in Surface Transportation
- White Paper: An Integrated Network of Transportation Information
- Winter Maintenance in Thompson Falls (Memorandum)
- Winter Operations Weather Forecasts: Do They Work for the Maintenance Shed Supervisor?
- Winter Storm Event Volume Impact Analysis Using Multiple Source Archived Monitoring Data

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Titles (listed alphabetically)

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- A-D Keyword
- E-I Keyword
- J-R Keyword
- S-Z Keyword
- Custom Keyword
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Titles (listed alphabetically)

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- A-D Keyword
- E-I Keyword
- Emergency mgmt.
- Environment
- ESS
- Evacuation
- Flood warning sys.
- Flooding
- Fog
- Forecasts
- Freeway mgmt.
- Gates
- Humidity
- Hurricane
- Incidents
- Institutional issues
- Internet/Web site
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- A-D Keyword
- E-I Keyword
- J-R Keyword
  - Landslide
  - Law enforcement
  - Lighting
  - Maintenance veh.
  - Mobile sensing
  - Mobility
  - Motorist warning sys.
- Pavement condition
- Pavement temp.
- Precipitation
- Productivity
- Rain
- RWIS
- Route choice
- S-Z Keyword
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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AFWS</td>
<td>Automated Flood Warning System</td>
<td>DSS</td>
<td>Decision Support System</td>
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<tr>
<td>AASHTO</td>
<td>American Association of State Highway and Transportation Officials</td>
<td>EOC</td>
<td>Emergency Operations Center</td>
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<td>ATIS</td>
<td>Advanced Traveler Information System</td>
<td>ESS</td>
<td>Environmental Sensor Station</td>
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<td>ATMS</td>
<td>Advanced Traffic Management System</td>
<td>FHWA</td>
<td>Federal Highway Administration</td>
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<td>AVCS</td>
<td>Advanced Vehicle Control System</td>
<td>GPS</td>
<td>Global Positioning System</td>
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<td>B/C</td>
<td>Benefit/Cost</td>
<td>HAR</td>
<td>Highway Advisory Radio</td>
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<td>BMP</td>
<td>Best Management Practice</td>
<td>HAZMAT</td>
<td>Hazardous Material</td>
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<td>CCTV</td>
<td>Closed Circuit Television</td>
<td>ISP</td>
<td>Information Service Provider</td>
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<td>CDPD</td>
<td>Cellular Digital Packet Data</td>
<td>ITS</td>
<td>Intelligent Transportation System</td>
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<td>CMAQ</td>
<td>Congestion Mitigation and Air Quality</td>
<td>MMDI</td>
<td>Metropolitan Model Deployment Initiative</td>
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<td>DMS</td>
<td>Dynamic Message Sign</td>
<td>NCHRP</td>
<td>National Cooperative Highway Research Program</td>
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<td>DOT</td>
<td>Department of Transportation</td>
<td>NWS</td>
<td>National Weather Service</td>
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<td>Department of Public Safety</td>
<td>OFCM</td>
<td>Office of the Federal Coordinator for Meteorology</td>
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<td>DSL</td>
<td>Digital Subscriber Line</td>
<td>OK-FIRST</td>
<td>Oklahoma’s First-response Information Resource System using Telecommunications</td>
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<td>OLETS</td>
<td>Oklahoma Law Enforcement Telecommunications System</td>
<td>US</td>
<td>United States</td>
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<td>PC</td>
<td>Personal Computer</td>
<td>USDOT</td>
<td>United States Department of Transportation</td>
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<td>PVC</td>
<td>Polyvinyl Chloride</td>
<td>UTCS</td>
<td>Uniform Traffic Control System</td>
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<tr>
<td>RPU</td>
<td>Remote Processing Unit</td>
<td>VHF</td>
<td>Very High Frequency</td>
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<td>RWIS</td>
<td>Road Weather Information System</td>
<td>VSL</td>
<td>Variable Speed Limit</td>
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<td>SCADA</td>
<td>Supervisory Control And Data Acquisition</td>
<td>WAN</td>
<td>Wide Area Network</td>
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<td>State Highway Emergency Patrol</td>
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<td>STC</td>
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<td>TRIS</td>
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<tr>
<td>UHF</td>
<td>Ultra-High Frequency</td>
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The Best Practices for Road Weather Management CD, released in August 2002, contains resources to help traffic, emergency and maintenance managers learn how to mitigate the impact of weather threats on roadways. The CD contains:

- Case studies employed in response to various weather threats including fog, high winds, snow, rain, ice, flooding, tornadoes, hurricanes, and avalanches;
- Listing of road weather publications;
- Acronyms list; and
- Online resources.

**For Additional Information**
Paul Pisano, Team Leader, Road Weather Management, FHWA.
- 202-366-1301
- paul.pisano@fhwa.dot.gov

Lynette Goodwin, Sr. Transportation Engineer, Mitretek Systems
- 202-488-3033
- lynette.goodwin@mitretek.org

Road Weather Management program: www.ops.fhwa.dot.gov/weather

ITS Joint Program Office: www.its.dot.gov

Office of Transportation Operations: http://www.ops.fhwa.dot.gov/Traffic/

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