Anatomy of Change in Winter Maintenance
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* Membership as of December 2009.
3 **INTRODUCTION**

**Anatomy of Change in Winter Maintenance**

*Frank N. Lisle*

A new science of surface transportation weather is evolving as new technologies are developed, evaluated, and integrated into the operations of departments of transportation and into local and national meteorological services to preserve safe roadway networks during winter weather events.

4 **Winter Weather and Road Condition Forecasts: Advances in Models, Sensors, Tools, and Platforms Improve Maintenance Operations**

*Kevin R. Petty*

Increasing computer power, new forecasting methods, and more timely and accurate, high-quality, near-surface observations are supporting road weather forecast improvements and decisions about winter road treatments. The author reviews the arsenal of forecasting tools available to assist practitioners in strategic and tactical decision making.

8 **Getting the Most out of Winter Weather Forecasting Services**

*Richard M. Balgowan*

10 **Developing a Winter Maintenance Decision Support System: Prototype to Field Tests to Payback—and Beyond**

*Leland D. Smithson and Wilfrid A. Nixon*

Collaborative research by the maintenance operations and the meteorological communities has supported the development of a decision support system incorporating the science of surface transportation weather with winter maintenance treatment practices. The authors report on problems solved, promising results, and developments ahead.

11 **Adjusting Traffic Signal Timing in Inclement Weather**

*Adel W. Sadek*

13 **Avalanche in the Teton Mountains: Chronology of an Event on Wyoming State Highway 22**

*Jamie Yount*

17 **Evolution of the Highway Maintenance Concept Vehicle: Assembling the Ideal Platform for Mobile Winter Operations**

*Leland D. Smithson and John R. Burkhardt*

With support from the Federal Highway Administration, a research consortium of state departments of transportation has undertaken the design and development of a highway maintenance concept vehicle deploying the latest technologies to improve snow and ice control operations.

19 **The Role of Chemicals in Winter Maintenance**

*Richard L. Hanneman*

22 **Going Green with Snow Fences: Technology Reinvents a Settler Practice**

*Leland D. Smithson*

Progress has been made in the research, modeling, technology transfer, and implementation of engineered techniques for mitigating the effects of blowing and drifting snow. Agencies are realizing the environmental benefits of snow fences, as well as favorable benefit-to-cost ratios.

26 **Real-Time Traffic Management Communications in Sweden: An Effective Smorgasbord of Technologies**

*Jan Ölander*

The Swedish Road Administration is expanding its communication of information about road network conditions with real-time reports through the Internet and other technologies. Also in use are an automated system that can adjust speed limits to weather and pavement conditions and the Slippery Road Information System, which combines in-vehicle technology with infrastructure data to generate detailed information on road conditions.
The Transportation Research Board’s 2009 Annual Report is included in this issue as a special insert between pages 26 and 27.

28 Pushing Road and Weather Information to the Public: Japan’s Use of Cell Phones and E-Mails
Masaru Matsuzawa

30 Training for Winter Maintenance Operations: Reaching the Public, Building on Know-How
Wilfrid A. Nixon
Winter maintenance operations training efforts should be tailored for—and delivered to—all users and maintainers of the transportation system, according to this author, who offers several practical approaches and describes computer-based training programs that incorporate illustrations, videos, tutorials, storm scenarios, and assessments to train users to a high level of understanding.

31 Creativity Takes to the Streets
Kathy Ahlenius

34 Selecting Snow and Ice Control Chemicals to Mitigate Environmental Impacts
Richard L. Hanneman

35 Research Pays Off Implementing a Winter Maintenance Decision Support System: Indiana Department of Transportation’s Process, Success, and Savings
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C O M I N G N E X T I S S U E

The connection between baseball and the growth of streetcar lines in the 19th century United States is the subject of a feature article by transportation historian Robert G. Cullen in the January–February 2010 issue of TR News. Other key features present the use of self-assessments by state departments of transportation to effect organizational change and align goals; guidelines and practical tips for communicating the value of transportation research; an overview of a National Research Council report on the potential development of hydrogen fuel cell vehicles; and a summary of findings and emerging trends from the 2009 field visits by senior program officers in the TRB Technical Activities Division.

Streetcar developers in the late 19th century invested in professional baseball as a destination to stimulate travel. The team name “Dodgers” has origins related to trolleys.