

# TR NEWS



## Environmental Sustainability in Transportation

- Practical Tools for Project Decisions
- Applying the Eco-Logical Framework
- Roadside Vegetation: Green Infrastructure
- Orchestrating Soundscapes
- Airspace System Initiatives
- *Plus* Quieter Pavements, Recycled Materials—and More



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# TR NEWS

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SEPTEMBER–OCTOBER 2013

## ENVIRONMENTAL SUSTAINABILITY IN TRANSPORTATION

### 3 INTRODUCTION

#### **Environmental Sustainability in Transportation: Improving the Quality of Life**

*Robert M. O'Loughlin*

Transportation agencies have refined their organizational goals to foster sustainable strategies and approaches to problems from the perspective of the “triple bottom line”—environment, economy, and social equity.

### 4 **Evaluating Sustainable Development: A Quality-of-Life Focus for Transportation Decision Making**

*Adjo A. Amekudzi*

Effective data and analysis tools are important for a decision-making framework that has a quality-of-life focus; the author presents three model applications: the sustainability footprint, multiple-attribute decision making, and strengths–weaknesses–opportunities–threats analysis.

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*Benjamin Cotton*

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*Michael J. Savonis*

#### **12 Paths, Roads, and Rails to Better and More Sustainable Living**

*Jamie Montague Fischer*

### 14 **Integrating Vegetation and Green Infrastructure into Sustainable Transportation Planning**

*Richard Baldauf, Greg McPherson, Linda Wheaton, Max Zhang, Tom Cahill, Chad Bailey, Christina Hemphill Fuller, Earl Withycombe, and Kori Titus*

With increased urbanization worldwide, the number of people exposed to traffic emissions near high-volume roadways continues to increase. The authors present practical highlights from a workshop on roadside vegetation as a sustainable option for mitigating the health impacts of air quality near roads.

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*Bridget Donaldson and Ed Wallingford*

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*Anne E. Bruder*

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*Julianne Schwarzer and Haley Peckett*

The origins and evolution of the innovative *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* are traced, along with examples of early successes and current initiatives applying the collaborative framework for integrating plans across agency and political boundaries to streamline the transportation process and to improve environmental outcomes.

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*Jim Pappas*

### 32 **Soundscapes: A Sustainability Approach to Transportation Noise Management**

*Kenneth D. Polcak and Nicholas P. Miller*

To pursue desirable soundscapes as part of the transportation planning process, policy makers, engineers, and design professionals will need to understand subjective judgments about the sonic environment, the authors note. Soundscape considerations are likely to alter the analysis and design processes, particularly in relation to noise barriers, quieter pavement, and source reduction.



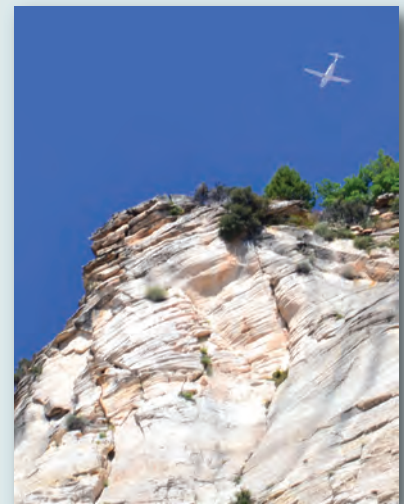
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COVER: Parks and other natural settings grapple with transportation noise mitigation. Government agencies and state departments of transportation deploy sustainability initiatives suited to specific community and environmental needs. (Photo: Volpe Center)

# TR NEWS

features articles on innovative and timely research and development activities in all modes of transportation. Brief news items of interest to the transportation community are also included, along with profiles of transportation professionals, meeting announcements, summaries of new publications, and news of Transportation Research Board activities.

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Katherine Harback and Anuja Mahashabde

The authors explore ways to apply sustainability principles in assessing priorities and making investment decisions to improve the environmental performance yet balance the economic and social objectives of the national airspace system, amid evolving air transportation needs, revised air traffic growth forecasts, and tighter government budgets.

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## COMING NEXT ISSUE

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including instructive case studies. Also described are the systematic implementation vision and goals of the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the National Highway Traffic Safety Administration, as SHRP 2 innovations gain widespread adoption and upgrade the U.S. highway system, “saving lives, reducing congestion, and improving the quality of life.”

Precast integral abutments produced for the Vermont Agency of Transportation (VTrans), which piloted the SHRP 2 accelerated bridge construction (ABC) toolkit. VTrans faced many emergency bridge replacement projects after tropical storm Irene in August 2011; these abutments were for the agency's first ABC project, Hancock Bridge on Route 125, constructed in May and June 2013.