



Committee on Ecology and Transportation Newsletter

Transportation Research Board Committee ADC30

January 2012



View from the Chair

Alex Levy, Chair Ecology and Transportation Committee

Shrouded in Change

Life is what happens while you are busy making other plans.
- John Lennon

Indomitable optimism. That's where we must begin 2012, simply because to do otherwise would benefit no one and wouldn't be a hedge against the sometimes humbling terms of working, living, and moving-about in these times of our lives.

In the year that's in our rearview mirror, perhaps more than any other, we were –member, friend, and the community of research professionals and practitioners – each a party to change. Whether visited on us eagerly, reluctantly, or regretfully; change was that seemingly universal constant that wouldn't yield.

The TRB Ecology and Transportation Committee began 2011 with the thrill of the aura of the ARC International Wildlife Crossing Infrastructure Design Competition's spotlight in our nation's capital. We were there as the TransWild Alliance, a coalition of conservation advocacy organizations, awarded its fourth annual series of mini grants to recognize the good works of practitioners, researchers, and programs having the goal of conserving wildlife in the roaded environment. From the record turnout at last January's 90th Annual TRB Meeting and August's International Conference on Ecology and Transportation (ICOET) in Seattle, Washington, to the loss of unyielding representation from two prominent NGOs, the retirement of our founding committee chair and a founding international member, the installation of an eager cast of new young members, and – of course – contending with lingering uncertainty about the continued funding paradigm that has underwritten the critical

contributions of our University Transportation Centers, it's been a very full and memorable year.

While founding committee member Trish White remains a steadfast conservation advocate and champion of research-based solutions, an unwelcome surprise came with the news that austerity brought to an end over a decade of her representation on behalf of Defenders of Wildlife as they throttled their Habitat and Highways campaign. Then, just ahead of the onset of the recent holiday season, came heart-wrenching news of the untimely passing of a founding committee member, the Humane Society of the United States' Susan Hagood, PhD. An unwavering wildlife advocate and research practitioner, Susan will forever be known to many for her work on eastern box turtle conservation and to this chair as a friend and party to a valued friendship that began 10 years ago on an ambling motor-coach journey to discover European ingenuity and leadership in road ecology. With our committee, Susan worked behind the scenes to help TRB achieve record success at the 2010 mid-year Environment and Energy Mega meeting in Raleigh, NC. Even as she quietly battled an aggressive malignancy, Susan remained devoted to ADC30 as our aspiring paper review coordinator for the 2012 annual meeting. Because those of us who knew and collaborated with Susan will always grieve losing a fierce friend, this committee's condolences can never be completely expressed to her husband, Jerry Boxman, and Susan's surviving family.

In addition to Susan Hagood, I want to recognize the dedication of some other members of our family that you should be sure to thank Joseph Burns, Bethany Williams, and Dale Youngkin for coordinating our sponsored program offerings at this month's 91st Annual TRB meeting. Coming off August's high at the robust ICOET gathering

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and the well-attended business meetings held there by this committee and the Environmental Analysis Committee (ADC10), I was abruptly called away from timely preparations for the annual meeting to assist in the reclamation of a storied southern Montana river following an oil spill caused by last summer's devastating floods. So, while this ecologist had boots-on-the-ground, you can credit this year's annual meeting program to those who rolled-up their sleeves.

In the span of just one year's time, our committee and its family of members and friends - both veterans and freshmen - have experienced triumph, challenge, and tragedy. However, there's no time to rest and reflect; the work of this committee is never done and the best way we can honor the work of the past is to seize the research needs and opportunities of tomorrow.

Turning the page to 2012, we begin the New Year disseminating cutting-edge and practice-ready research results at the 91st Annual meeting. In cooperation with the Environmental Analysis Committee (ADC10), we'll be revisiting the location of the 2007 ICOET, when Arkansas

State Highway and Transportation Department hosts our joint midyear meeting, June 24-27, in Little Rock. October will bring an exquisite opportunity to caucus with our European peers at the biennial meeting of the Infra Eco Network of Europe, in Potsdam-Berlin, Germany (www.iene-conferences.info). We'll also keep our eyes on the road ahead for the 2013 ICOET in Arizona; one of the handful of states that continues to serve as an incubator for practice-ready ecology and transportation research. In addition to engaging opportunities to explore needed and emerging research, 2012 will be a year our Ecology and Transportation Committee seeks new domestic and international members.

So, while we're making plans and looking ahead, life will continue to present us with challenges, opportunities and – all things permitted – some pleasant surprises. I look forward to a year filled with new milestones and – above all – hope for a future made brighter by the dedication of those who've come, those who've moved-on, and all who continually strive to foster research that makes ours a better world for the mobility of all its inhabitants.

The Future of Roads:

A new article by Richard T.T. Forman and Daniel Sperling

By Marcia Bowen, Normandeau Associates

Imagine automobile travelling without fossil fuel use and greenhouse gas emissions; minimal "driving" and perhaps most importantly, no conflict with wildlife. This is the futuristic scenario envisioned by Committee member Richard Forman, PAES Professor of Landscape Ecology at Harvard University and his co-author Daniel Sperling, founder of the UC Davis Institute of Transportation Studies, in their recent article *The Future of Roads: No Driving, no Emissions, Nature Reconnected*. While many practitioners focus their attention on offsetting impacts from our current highway system, these authors have envisioned a transportation system that reverses the adverse ecological effects and restores fragmented and otherwise degraded habitats.

Their solution focuses on rural and suburban areas containing both high-use highways and the most valuable natural habitats. Their transportation system converts highways to "netways", either elevated above ground ("elevated ways") or partially or fully below ground ("earthways"); personal vehicles are replaced with strong, lightweight, and aerodynamic driverless "pods", which transport people and goods using predominantly renewable energy sources. The system

would include numerous pedestrian access locations linking larger service centers, similar to subway or bus stations and trucking distribution centers.

Of interest to this committee, the elevated netways would be positioned at approximately 13 feet above ground, allowing all of our native wildlife free passage. Support would be provided by small (4.5-5 foot in diameter), widely spaced pillars (80-110 feet apart) to allow habitat and hydrological connectivity. Earthways, placed 6-8 feet below ground using cut and cover construction techniques, would typically be used in dry, open lands. Low overpasses constructed at frequent intervals would facilitate wildlife passage. Most importantly, the netways would use approximately half of the width of traditional highway, enabling a substantial amount of landscape restoration.

The authors outline a plan to transform our highways to netways, beginning with planning, then pilot projects, and over time expanding to full fledged systems. While substantial funds would be needed, the authors emphasize the non-monetary environmental and social benefits such as wildlife safety and free movement, aquatic habitat improvement, and improved human safety. This visionary article can be viewed in its entirety at <http://www.thesolutionsjournal.com/node/975>

WILDLIFE STUDIES AT NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

By Anne Burroughs, Project Development and Environmental Analysis Branch Natural Environment Unit -Biological Surveys Group

North Carolina Department of Transportation (NCDOT) has funded three wildlife research studies for a proposed highway lane expansion of US 64. These studies assess potential impacts and means to reduce those impacts for red wolves, black bears and other wildlife, as well as improve traveler safety. The studies, conducted by Virginia Tech and the University of Central Florida, were completed in 2011 for the two-to-four lane highway expansion project in Tyrrell and Dare counties. The proposed expansion project is 27 miles long, mostly on existing alignment. The Dare



Washington County US 64 underpasses with doe and fawn, picture by University of Tennessee.

County section bisects the Alligator River National Wildlife Refuge. The counties are home to red wolves, black bear and many other species, both on and off of the refuge. GPS collars, genetic analysis, cameras, drift fence traps and track beds were used to in data collection. This highway project lies to the east of the completed four-lane Washington County section of US 64, which has three large wildlife underpasses and associated wildlife fencing. Pre- and post-construction studies (completed by the University of Tennessee) on the Washington County crossings documented improved driver safety and connectivity for black bear; however, the studies also noted increased animal collision rate at fence ends and within fenced

areas. Therefore improvements to fencing design and additional smaller crossing structures for small wildlife were needed. Unlike the Washington County section, most of the Tyrrell and Dare section of US 64 is at or just above sea level. This presents an additional challenge, especially when considering smaller, less-mobile wildlife. These studies will aid in the planning of cost-effective wildlife crossing structures and fencing to reduce wildlife habitat fragmentation caused by lane expansion while improving safety for highway travelers.



Black bear approaches existing US 64 in Dare County, picture by Virginia Tech.



Drift fence trap, Tyrrell County, picture by University of Central Florida



CALL FOR PRESENTERS!!!

Abstracts for oral presentations and posters are invited for the 5th Biennial Northeastern Transportation and Wildlife Conference to be held September 9 – 12, 2012 at Jordan Grand Resort Hotel & Conference Center, Newry, Maine. The meeting theme is Road Ecology in Economically Challenging Times. At this time, regulatory and economic factors provide challenges to providing transportation infrastructure that has a reduced affect upon the surrounding landscape. The amount of deficient infrastructure exceeds the funds available so that modifications and strategies required by regulatory requirements get priority. This conference will discuss these challenges and show how agencies are meeting the challenge with the resources available. 2012 Topic areas include:

- Regulatory - ESA Section 7 Consultation requirements
- Wildlife mitigation- Monitoring protocols, examples and results, (both wildlife and aquatic organisms)
- Integrating strategies -Within the State and Provincial DOTs, Resource Agencies, and other NGO and Conservation partners
- Safety- Collision reduction strategies
- Economics -Cost effective innovations
- Passage strategies- Habitat modifications for aquatic organisms
- State wildlife strategies/Initiatives
- Road ecology planning strategies/ Integrating planning strategies into final design plans

Focal topics can be research, planning, monitoring, design, and/or active conservation. Abstracts do not necessarily need to address one of the suggested topic areas listed above but a clear link to wildlife conservation and transportation planning in the northeast must be justified. The abstract deadline is March 23, 2012. For more information, contact Richard Bostwick at Richard.Bostwick@maine.gov.

DON'T MISS the TRB Environmental Analysis, Ecology, and Air Quality Summer Conference on June 24-27, 2012, in Little Rock, Arkansas. The conference will look at the latest developments in approaches, technologies, and policies as they affect environmental, ecology, and air quality challenges of planning, design, construction, and maintenance of surface transportation systems.

Vehicle Activated Lighting Project Nears Completion

*By Richard Bostwick, Supervisor of Field Services,
MaineDOT –Environmental Office*

The Maine Department of Transportation is currently in the final stages of planning a lighting project north of Caribou along Route 161 in Madawaska Lake Township in Northern Maine. This project will involve vehicle-activated LED lights along three sections of Route 161 that have a high incidence of crashes with moose. The sections are about half a mile each. The lights will be solar pow-

ered, and activated by on coming vehicles. The lights will illuminate the road and the adjacent area to make it easier to see large animals approaching the roadway. Tentatively, the Department hopes to have them installed this winter in time for the period of high moose activity next spring. Specifics of the proposed plan will be available as the project is developed. MaineDOT has installed signage and other warning devices along Route 161 north of Caribou.

Save the Date!

**2013 International Conference on Ecology and
Transportation (ICOET)**

June 23-27, 2013

The Westin Kierland, Scottsdale, Arizona
<http://icoet.net>



Editor: Marcia Bowen, Design: Linda Cable
Normandeau Associates, Inc.

Sunday, January 22, 2012		Monday, January 23, 2012
<p style="text-align: center;">WORKSHOPS</p> <p>9:00am-4:30pm <u>141</u> Integrated Transportation and Air-Quality Modeling: Model Evaluation and Validation, Data Issues, and Application to PM Hotspot Analysis (ADC20)</p> <p>9:00am-Noon <u>131</u> No Silver Bullets: Alternative Fuels in the Transportation Sector (ADC80, ADC70, ADC20) <u>106</u> Environmental Management of Low-Volume Roads (AFB30, AFS90, ADC30) <u>136</u> Using Models to Meet the Demands of Transportation Planning in the 21st Century (A0020T, AP020, ADD30)</p> <p>1:30pm-4:30pm <u>183</u> Riding the National Environmental Policy Act Railroad (ADC10, AR010, AR020, AR020(1)) <u>179</u> Measuring the Influence of Pavement Surfaces on Traffic and Vehicle Noise at the Wayside (ADC40, AFD90) <u>187</u> Urban and Regional On-Road Transportation Greenhouse Gas Mitigation Options and Strategies Analysis (ADC70, ADC70(2), ADC80, ADD40)</p> <p>1:30pm-5:00pm <u>192</u> Following in Lee Schipper's Footsteps in Pursuit of Good Travel and Fuel Economy Data: State of U.S. Travel Data and Options for Improvement (ADC70, A0020T, ADC80, ADD40)</p> <hr/> <p style="text-align: center;">EVENTS</p> <p>2:30p-4:00p New & Young Attendees Welcome Session, MARRIOTT</p> <p>4:00p-7:00p Exhibit Hall Opening Reception, MARRIOTT</p> <p>7:00p-8:30p International Participants Reception, HILTON</p>	8:00a – 9:45a	<p><u>235</u> Transportation-Related Noise: Annoyance and Valuation (ADC40)</p> <p><u>229</u> Macroeconomic Impacts of Transportation Energy Research, Innovation and Regulation: Where the Jobs Are? Part A: Alternative Fuels and State Carbon Plans (ADC70/ADC80/ABE20/A0020T) ADC30 Cmte. Mtg. ADA30/ADC20 Air Quality Issues in Small and Medium-Sized Communities Subcmte Mtg. ADC50(2) Research Needs Subcmte. Mtg ADC60(1) Waste Management and Remediation Subcmte. AV030 Environmental Impacts of Aviation Cmte Mtg, AR020(1) Railroad Environmental Research Issues Subcmte Mtg.</p>
	10:15a- Noon	<p><u>283</u> Macroeconomic Impacts of Transportation Energy Research, Innovation and Regulation: Where the Jobs Are? Part B: Fuel Economy Standards and Other Green Energy Initiatives (ADC70/ADC80/ABE20/A0020T) ADC30 Cmte. Mtg. Continued ABE80/ADC50 Tribal Historical and Archeological Preservation Subcmte Mtg. ADC20(2) Regional Air Quality Analysis Subcmte Mtg.</p>
	Noon- 1:30p	
	1:30p- 3:15p WED. 2:30p- 4:00p	<p><u>330</u> Emerging Trends in Addressing Mobile Source Air Pollution (ADC20/ADC80/AW010/AW030)</p> <p><u>331</u> Enabling Planning-Level Ecological Decision Making: Recent Progress & the Development of National Online Information Support Systems (ADC30/ADC10) ADC40 Cmte. Mtg. ADC70(1) International Aspects of Transportation Energy Subcmte. Mtg. ADD40 Transportation and Sustainability Cmte Mtg.</p>
	3:45p- 5:30p WED. 4:30p- 6:00p	<p><u>387</u> Energy Security and Unconventional and Alternative Liquid Fuels: Canadian Oils Sands, US Shale Oil Formations and CNG, and Biofuels, What Does this mean for the Future? (ADC70/ADC80)</p> <p><u>386</u> Emerging Topics in Air Quality and Greenhouse Gases from Non-Highway Vehicles (ADC20) ADC40 Cmte. Mtg. Continued ADC10(1) Strategic Issues Subcmte ANB20(2)/ADC30 Animal-Vehicle Collisions Subcmte Mtg. ADD40 Transportation and Sustainability Cmte Mtg. (Continued)</p>
	5:45- 7:15p	
	7:30p- 9:30p	<p><u>449</u> Integrating Sustainability Rating Systems into Transportation Decision-Making (ADC10/ADC50/ADC60) AHB45/ADC20 (etc.) Traffic Simulation Models Joint Subcmte Mtg. MARRIOTT</p>

Color Code Key: BLACK – Sessions and Workshops; BLUE – Poster Session; GREEN – Committee/Subcommittee Meetings;

PURPLE – Sessions/meetings of interest to Section Committees; RED – Special Events

NOTE: XXX before title indicates assigned session number in the printed and online interactive Annual Meeting Program.

	Tuesday, January 24, 2012	Wednesday, January 25, 2012
8:00a – 9:45a	<p>480 Evaluating Parameters that Affect Tire-Pavement Noise: On-Board Sound Intensity Methodology Test Parameters and Pavement Sound Absorption (ADC40/AFK40/AFD90/AHD20)</p> <p>499 [8:30am-10:15am] Current Environmental Issues in Transportation (ADC10, ADC20, ADC30, ADC50, ADC60, AFB60, AR020(1))</p>	<p>703 Sustainable Transportation Operations and Infrastructure (Part A) – Planning to Make It Happen (ADC60)</p> <p>686 Aviation Noise Research Update (AV030/ADC40), SHOREHAM</p> <p>694 Can Transportation and Public Health Be Compatible? Considering Health in Transportation Decisions (ADC10/AL050/ADD50), ADC50 Cmte. Mtg. ADC70 Cmte Mtg., AW030 Marine Environmental Cmte Mtg, SHOREHAM</p>
10:15a- Noon	<p>524 Considering Traditional Cultural Significance: Past, Present, Future (ADC50/ABE80)</p> <p>541 [10:45am-12:30pm] Current Energy, Climate Change, and Alternative Fuels Issues in Transportation (ADC70, ADC80)</p> <p>538 [10:45am-12:30pm] Pavement Surface Characteristics - Comfort, Safety, and the Environment (AFD90, ADC40, AFK40, AHD20) ADC60 Cmte. Mtg. ADC40(2) Guided Rail and Transit Noise Subcmte. Mtg ADC10(2) Research Topics Subcmte Mtg.</p>	<p>743 Sustainable Transportation Operations and Infrastructure (Part B) – Practical Applications (ADC60)</p> <p>735 Advances in Integrated Analysis of Climate Change Impacts (A0020T/ADC20)</p> <p>717 Some Best Presentations From 2011 International Conference On Ecology & Transportation (AFB40/ADC30), MARRIOTT ADC50 Cmte. Mtg. Continued ADC80 Cmte. Mtg.</p>
Noon-1:30p	ADC60 Cmte. Mtg. Continued	<p>CHAIRMANS LUNCHEON [SHOREHAM] <i>(Ticket Required)</i></p> <p>ENVIRONMENT & ENERGY SECTION CHAIRS LUNCHEON <i>(Members Only)</i></p>
1:30p- 3:15p WED. 2:30p- 4:00p	<p>565 Climate Change Adaptation Practices for Ports, Airports, and Freight Terminals (ADC70/AW010/AW030/AV030/AT060/AT045) ADC10 Cmte. Mtg. ADC20(1) Project Level Air Quality Analysis Subcmte Mtg. ADC50(3) Programs Subcmte Mtg.</p>	<p>773 Texturing Concrete Pavements for Friction and Noise (AFH50, AFD90, ADC40), MARRIOTT</p> <p>765 Near-Road Nitrogen Dioxide (NO2) Monitoring (ADC20)</p> <p>769 They're STILL Everywhere: Tools for the Survey and Evaluation of Postwar Residential Resources (ADC50)</p> <p>762 Conducting Climate Change Vulnerability and Risk Assessments of Transportation Systems (A0020T, ABC40, AFB60)</p>
3:45p- 5:30p WED. 4:30p- 6:00p	<p>629 Plug-In Hybrid Electric Vehicles – Steps Towards Reality (ADC80)</p> <p>623 Advancing Research: How It Works and How To Make It Happen (ADC60/ADC50)</p> <p>634 [4:15pm-6:00pm] Asphalt Mixture Surface Characteristics and Interlayer Bond Strength Measurement (AFK40, AHD20, AFD90, ADC40), MARRIOTT ADC10 Cmte. Mtg. ADC40(1)/AV030 Aircraft Noise A0020T Climate Change and Energy Task Force Mtg (Members Only)</p>	<p>792 Environmental Analysis Tools: Applications for Planning and Environmental Commitment Tracking (ADC10)</p> <p>793 Greenhouse Gas and Environmental Impacts of Shale Gas (ADC70/ADC80) ADC20 Cmte Mtg.</p>
5:45- 7:15p		ADC20 Cmte Mtg. Continued
7:30p- 9:30p	<p>ADC40(3) Highway Noise & Vibration Subcmte Mtg. ADC70/ADC80/ADD40 Climate Change Subcmte. Mtg.</p>	<p>Committee Code Information Available Here: www.trb.org/CommitteeandPanels/OnlineDirectory.aspx#</p>

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