



Committee on Ecology and Transportation Newsletter

Transportation Research Board Committee ADC30

Summer 2012



View from the Chair: A Problem to Have...

Musings from the Chair Alex Levy

Many thanks to Bethany Williams, ADC30 representative, who helped organize our very successful mid-year meeting.

Coming in 2013... an Environmental Edition of TR News focusing on environmental issues and their relationship to quality of life. The title will be *Environmental Sustainability in Transportation—Improving the Quality of Life...* and many thanks to our Committee's organizer and point of contact Julianne Schwarzer. Contact Julianne at Julianne.schwarzer@dot.gov if you have a contribution- but act soon, deadline is September 15!

Annual Meeting Preview: Committee-sponsored Upcoming Workshops

Building on the success of the mid-year meeting research workshop, we've developed a half day workshop *Effective Practices to Develop Environmental Research Needs Statements and Funding Opportunities* (CGW13-004), cosponsored with ADC00, AW030, AR020(1), AV030. Also watch for *Incredibly Loud and Extremely Close: Effects of Noise on Wildlife; Parts 1 and 2* (the effects of construction and operational noise on wildlife).

Kicking-off the summer meeting in Little Rock, Arkansas was a plenary afternoon research needs workshop on a sultry southern Sunday in late June. In traditional workshop fashion, a few presentations were made about the importance and the art of generating research ideas and problem statements. This was followed by a breakout of groups assigned the challenge of brainstorming research needs and generating a few resulting problem statements. While many of the outcomes of the brainstorming session were timely and familiar themes, it was comments by the panel of speakers, including our own TRB program officer, Christy Gerencher, that made this committee chair muse on the relationship between the art of storytelling and articulating research needs for the broadest possible audience of research professionals, sponsors, and the communities-of-practice represented in TRB.

What makes a good story?



I will hazard this guess: the movies you love most feature characters that sweep you up, captivate your emotions, and who get you involved. Every audience viewing a movie wants to not only be interested in and empathize with the people they see on the screen, they want to be passionate about them, whether or not they are likable characters. We are inspired by great heroes and heroines; and great villains that make us want to jump into the screen. Successful stories

present us with a fresh face, but are always identifiable. In screenplay parlance, the first five minutes of a cinematic storytelling establishes the tone and what's at stake and orients the audience to important themes, characters and motifs. When telling a story, you know what makes your idea unique, but can you describe it quickly to others? What about making the case for research?

What Makes a Good Research Problem?

Without a strong research question, any research project is going to lack momentum and is likely to result in a weak response from research profes-

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sionals and engaged practitioners. In order to make sure we are advancing the goals of research, we work hard at facilitating the selection of research problems to be addressed, whether chosen by a committee friend or member or arrived at through group consensus. It may take some time and effort, but identifying the “right” problem well is essential in stimulating good research. Therefore, as with modern cinematic storytelling, outlining the problem in a narrative fashion may benefit from some valuable cues in screenwriting.

What exactly is a screenplay?

A screenplay is a document that outlines every aural, visual, behavioral, and lingual element required to cinematically tell a story. Outlines, because film is a highly collaborative medium and the director, cast, editor, and production crew will, based on an “outline”, interpret a story in their-own way when it is filmed. They may consult the writer, or they may not. Other writers may be brought in or the original author may be asked to re-write the entire thing. That’s life in the world of screenwriting. But because so many people are involved in the making of a film, a script must conform to standards that all involved parties understand and thus has a specific format that acknowledges certain conventions of written expression for the industry.

In screenwriting, it is crucial to remember that film is a visual medium. The audience isn’t merely told a story, they are shown the story. Thus screenplays must be written visually; writing both what the audience will see and what they will hear. So it is similar with research problem statements; because so many people may be involved in the generation of research, including practitioners, policymakers, and even public stakeholders, a problem statement must conform to standards that all involved parties can readily understand and to which they can all easily relate.

“Screenwriting” a Good Research Problem Statement

A good research problem is compelling. The problems that we prioritize for exploration must be important to the research community, to us, and to a larger community we share. The problem chosen must be one that motivates researchers to address it—to authentically engage in the goal of reasoned decision-making.

A good research problem must support multiple perspectives. The problem must be phrased in a way that avoids dichotomies and instead supports the generation and exploration of multiple perspectives. A general rule of thumb is that a good problem is one that would generate a variety of viewpoints from a composite audience made up of reasonable people.

A good research problem must be researchable. Though it may be stating the obvious, more than one professional has found themselves in the midst of a complex collaborative research project and realized that there simply is not much to draw on for research, nor opportunities to conduct sufficient primary research. Identifying research problems that can be supported by the resources available to the researcher is critical for effective outcomes, moreover for the generation of timely practice-ready results.

Umbrella topics must be sufficiently complex. If the problem is a broad, umbrella topic under which the addressing of more manageable problems and research needs can be anticipated, we must make sure that there is sufficient complexity in the research problems that the umbrella topic includes. These research topics must relate strongly to one another in such a way that there will be a strong sense of coherence in the efforts to answer the overarching question.

Going forward, for the remainder of 2012 and beyond, the TRB Ecology and Transportation Committee will continually engage the challenge of identifying and articulating those research needs identified in our forums and by our peers in the research, decisionmaking, and broader stakeholder communities. Soon you can expect to see an ever-evolving list of research needs coming to our website and you can be sure that, next year, we’ll be revisiting and renewing our Triennial Strategic Plan with an acknowledgement of the research needs to which we have brought attention and with an eye toward asking new, unanswered questions, as well as posing those timeless and broad themes that are the stuff of unending exploration and innovation. As a member or friend of ADC30, your research ideas are always valued and you can – in at least this instance - consider yourself a welcome part of the problem!

MBTA Greenbush Line Wildlife Crossing Structure Study

by Charlotte Cogswell and Ken Thomson,
CR Environmental, Inc., and Lars Carlson
Jacobs Engineering Group

In early April 2012, wildlife cameras were installed by CR Environmental at five wildlife crossing structures designed by the project team at the Massachusetts Bay Transportation Authority's (MBTA) Nantasket Station in Hingham, MA. Wetland pools are found on opposite sides of the Greenbush Line right-of-way. Photographic data is being collected weekly to quantitatively evaluate usage of the wildlife crossings. The purpose of the study is to confirm and document utilization of the wildlife crossings by spotted turtles and other wildlife.

The design for the crossings being tested consists of an under rail passageway through a high density polyethylene trough containing 6 inches of bark mulch. Barrier fencing (2-foot tall, 5/8-inch mesh, buried 6-inches deep) along the right of way boundary and pressure treated wood guide walls direct wildlife to the crossing locations. A total of 49 under rail crossings were installed project-wide. Crossings were concentrated in areas of known spotted turtle habitat, but also located at other likely wildlife crossing corridors.



Type-A Under Rail Crossing



Crossings at Nantasket Junction Station

Five remotely triggered wildlife cameras were installed, one at each wildlife crossing. Each camera station has two ways in which the camera can be triggered by wildlife, an active sensor beam located at the entrance of the turtle crossing or a passive infrared (IR) sensor mounted on the camera box. The passive

infrared sensor detects warm blooded animals in view of the camera. The active sensor beam was used to detect reptiles and amphibians. The photographs taken from each camera station have been evaluated on a weekly basis, the species or its signs (e.g. raccoon paw prints) identified, and all data entered into a database for further analysis.

All wildlife crossing structures have been used by wildlife. The common raccoon (*Procyon lotor*), Eastern gray squirrel (*Sciurus carolinensis*), and Eastern chipmunk (*Tamias striatus*) account for about 65% of the total observances at the crossings.

Other commonly observed wildlife were the Eastern cottontail rabbit (*Sylvilagus floridanus*) and mallard duck (*Anas platyrhynchos*). Not only were mallard duck adults observed but also a half dozen juveniles. Through the month of May, a progression of small chicks to older fledglings was captured by the cameras.

Reptiles utilizing the crossings included snapping turtles (*Chelydra serpentina*) observed in a range of sizes, spotted turtles (*Clemmys guttata*), and an unidentified snake. The



Snapping turtle crossing at 3:26 PM June 22, 2012

only amphibian observed was likely a green frog or bullfrog.

A female spotted turtle radio tagged by Hyla Ecological Services and CR at Nantasket station has historically traveled back and forth across

the right-of-way between the two wetland pools. Each visit to the site, the location of this radio tagged turtle was determined by telemetry in order to document which side of the right-of-way the turtle was on. Upon review of the pictures collected from the turtle crossing stations, we were able to ensure that the cameras were documenting turtle movement through the crossing structures.

Beginning in late May other mammals were captured by the cameras including river otter (*Lutra canadensis*), a fisher cat (*Martes pennanti*),



River otter crossing at 5:26 AM on May 19, 2012

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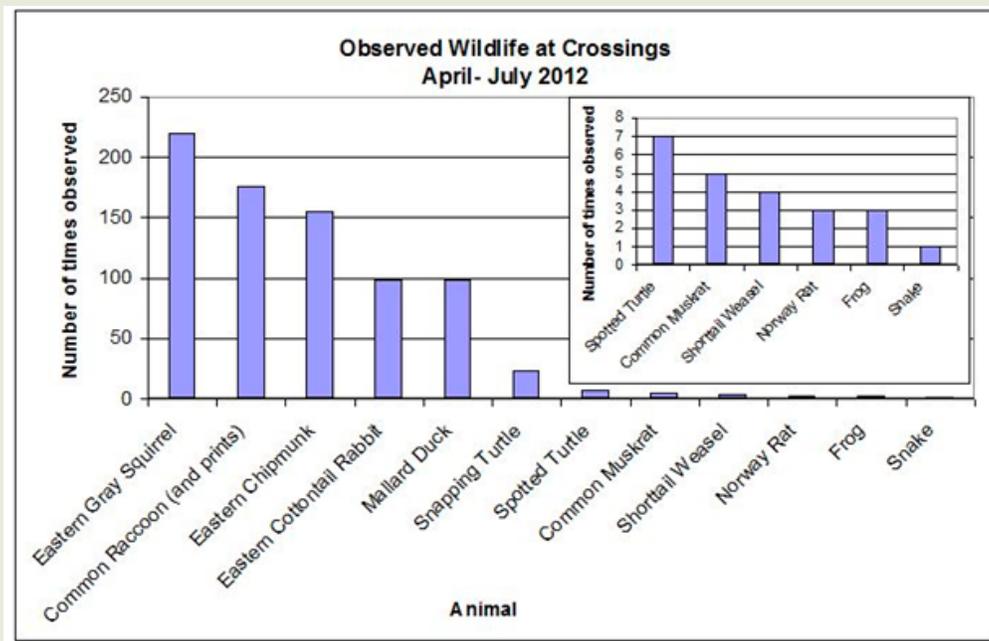
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shorttail weasels (*Mustela erminea*), and in July a whitetail deer (*Odocoileus virginianus*) was captured at one of the camera stations as it walked down the right-of-way. A number of passerine birds were also incidentally observed including robins, grackles, and wrens.

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Effects of Noise on Fish, Fisheries and Invertebrates: A New Report

By Marcia Bowen, Normandeau Associates

There has been increasing focus on underwater sound and its effects on aquatic organisms. From a transportation perspective, underwater sound impacts generated from pile driving during bridge construction has been a concern for endangered salmonids from the US West Coast. Interim criteria for harmful physiological effects from pile driving were developed by the Fisheries Hydroacoustics Working Group, a multi agency group that includes Caltrans, Oregon DOT, Washington DOT, FHWA, NOAA Fisheries, US Fish and Wildlife Service, California Dept. of Fish and Game, & US Army Corps of Engineers.

Now information on sound effects comes from a new source, the Bureau of Ocean Energy Management (BOEM), the agency that has authority to issue leases for use of the Outer Continental Shelf. BOEM’s missions include sound-generating activities such as seismic exploration, pile driving, drilling, dredging, and vessel traffic, and thus they are responsible for evaluating the effects of these noise sources on biota. The sheer taxonomic and physiological diversity of fishes and invertebrates make it difficult to have a comprehensive understanding of how these species respond to, and are potentially affected by,

man-made sounds. As a result, BOEM contracted Normandeau Associates, with sound experts Dr. Arthur Popper, University of Maryland, and Dr. Tony Hawkins, Managing Director of Loughine Limited, to advance the understanding of these issues. The project encompassed three components:

- Compile recent information on the effects on underwater sounds on fish, fisheries, and invertebrates;
- Convene a group of experts to discuss the state of knowledge on this topic,
- Evaluate of the information needs and data gaps.

A comprehensive literature review is now available that synthesizes research on the effects of noise from man-made sources on fish, fisheries, and invertebrates (http://www.boem-soundworkshop.com/pages/literature_synthesis.asp). The synthesis includes a summary of the background levels of sound in the sea; biological sound production and hearing capabilities of ESA-listed species, invertebrates and fish; and the various effects from sound exposure that have been documented, ranging from behavioral responses to injury or death. A workshop summary and an analysis of the information needs and identified data gaps are in final review and should be posted shortly. For more information, please contact Normandeau’s project manager, Ann Pembroke at apembroke@normandeau.com



Improving Highway Safety and Protecting the Endangered Florida Panther in South Florida



Written by Daniel Smith University of Central Florida and Debbie Tower, FDOT

Introduction

The first system of its kind to be installed in Florida, the Roadside Animal Detection System (RADS), is an innovative project designed to help protect wildlife within the Big Cypress National Preserve (BCNP). The system was installed by the Florida Department of Transportation (FDOT) on a 1.3 mi section of US Hwy 41 near the Turner River, east of the City of Naples. This location in the BCNP was identified by federal and state wildlife agencies as a critical hotspot for vehicle-related deaths of the federally endangered Florida panther. Eleven vehicle collisions with panthers have been recorded since 1984. Nine of these occurred between 2004 and 2012 and 55% were breeding-age females.

The RADS alerts motorists to slow down when large animals, like the Florida panther and black bear, are close to the road. The system uses solar-powered infra-red sensors to detect wildlife approaching the roadway. When an animal is detected, it communicates that message to drivers by illuminating bright, flashing LED lights on warning signs placed along the road.



Endangered Florida Panther

Warning signs are placed at 200 ft. intervals within the 1.3 mile RADS project area

Project Partners and History

The US Fish and Wildlife Service and Defenders of Wildlife partnered together to obtain enhancement grant funding through FDOT for this project. Other partners who helped develop the project included Big Cypress National Preserve, Florida Fish and Wildlife Conservation Commission, University of Central Florida and Montana State University's Western Transportation Institute.

An information workshop on July 30, 2009, offered the public an opportunity to discuss wildlife crossing needs in the BCNP on US Hwy 41 with FDOT. After reviewing comments received and evaluating different options, FDOT implemented the RADS project in two phases to improve motorist safety and wildlife protection in this area. Phase one included installation of panther advisory signs with flashers in the 1.3 mi segment of US Hwy 41. The second phase included design and installation of a centrally controlled and integrated system of sensor arrays. The system became operational in January 2012.



RADS sensors will identify deer, for example, if it nears the highway

Benefits

Research has shown RADS to be effective in reducing vehicle collisions with large wildlife in other areas of the United States. This mitigation measure is intended to help prevent fatalities and injuries to people and animals. In this case, the target species are Florida panther, black bear, white-tail deer and American alligator, although other large wildlife will also benefit from the animal detection system.

Florida panther, the state animal, is one of the most endangered mammals living in the United States. Its population is estimated between 100–160 individuals. The RADS will provide early warning to drivers about the presence of panther and other large animals nearing the highway. Motorists can then reduce their speed and be more prepared for animals crossing the roadway in this segment of US Hwy 41.



Warning signs are placed at 200 ft. intervals within the 1.3 mile RADS project area

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Roadkill Composting: Research and Implementation in Virginia

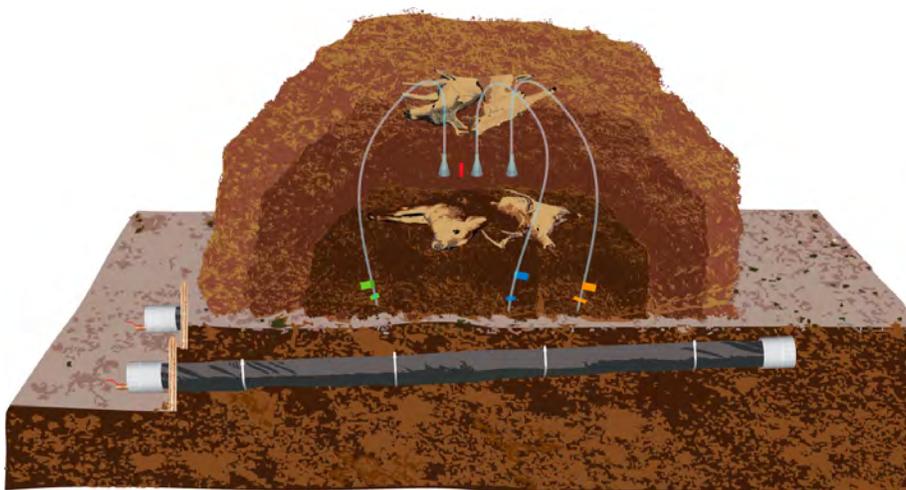
Bridget M. Donaldson

*Virginia Center for Transportation Innovation and Research/
VDOT*

Many states are struggling with cost effective and environmentally friendly ways to manage the millions of animals per year that are stuck by vehicles. The predominant methods of disposing of these carcasses (landfill and burial) have several costly and unsustainable disadvantages, including long travel distances to landfills, increasing landfill restrictions, and lack of viable burial areas. Composting is one easily managed option that has met with success in some states, while other states have costly regulations that discourage its implementation. A study conducted by the Virginia Center for Transportation Innovation and Research evaluated leachate constituents and pathogen concentrations from compost windrows containing deer carcasses. The resulting data, if favorable, could be used by states to support regulatory negotiations to reduce composting requirements and increase implementation prospects.

Deer mortality static compost windrows were monitored for 1 year. Windrows were analyzed for pathogen destruction and the degree to which underlying soil filtered leachate contaminants. In response to high wind-

row temperatures, indicator pathogens were destroyed in less than three months. Soil filtration of leachate was effective in reducing concentrations of ammonia, chloride, and total organic carbon. Nitrate, a contaminant of particular regulatory concern, had an estimated mass contaminant loss of 1.9 lb/acre, compared to the estimated 8 to 45 lb/acre loss from fertilizer application on typical agronomic crops. The Virginia Department of Transportation is sharing these findings with the state environmental regulatory agency with a goal of incorporating this practice into regular operations.



Experimental static compost windrows containing deer carcasses. Buried lysimeters captured leachate, and pathogens were contained in flasks within windrows.

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RADS also will improve habitat connectivity for large wildlife species like the Florida panther, black bear and white-tailed deer. The equipment and installation costs associated with RADS is less than the cost to construct most other wildlife crossings used in Florida; and it doesn't require fencing, which allows free movement of wildlife across the road and also improves visual aesthetics throughout the project area.

Next Steps

The University of Central Florida will use funding obtained by FDOT to conduct a 2-yr field study to evaluate the performance of the system. The study objectives include assessing the reliability of the system in detecting the target species and determining the effectiveness of the warning signs in increasing driver awareness, decreasing vehicle speed and ultimately reduc-

ing probability of collisions. The study will begin in late summer of 2012 and involves on-scene wildlife and vehicle surveys, data collection from cameras and sensors and driver simulation experiments. Staff will record where and when RADS detects animals within the project segment, frequency of the system's activation, and wildlife species detected.

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G3 Digest

by Richard Taylor, FHWA

EPA/Federal Highway Administration's, Green Highways Partnership (GHP) publishes the highly successful bi-monthly email subscription based, *G3 Digest*. *G3 Digest* serves as an integrated portal providing linkage to a broader range of information on sustainable transportation and the environment. *G3 Digest* is designed to deliver, stories and information, relevant research reports, surveys, case studies and histories. *G3 Staff* reviews and compiles select stories, articles and information into featured

category lists for bi-weekly publication. Key areas of interest and innovation include advances in technology and announcements of upcoming events and information. FHWA has received a \$75,0000 grant to increase the *G3* list serve. Stakeholders include FHWA, State DOT's, resource agencies, general public, NGOs, associations, and consulting firms that work in the transportation projects. The newsletter will also enhance project support by publicizing activities and allowing for transparency across different agencies. Make sure to get your topics to Richard Taylor @Richard.Taylor@dot.gov so that they can be featured in the newsletter.

Wildlife Use Utah's Wildlife Crossings

by Patricia Cramer, PhD, Utah State University

Thousands of wildlife-vehicle collisions (WVCs) occur in Utah each year. Not only do these collisions pose safety hazards for motorists, but they threaten wildlife populations by bisecting wildlife habitat, making it difficult for wildlife to survive.

Utah Department of Transportation (UDOT) along with the Utah Division of Wildlife Resources (UDWR) has been building wildlife crossings along with wildlife fencing (up to 8 feet high) since 1975 to help wildlife move under and over roads, thus preventing WVCs. In 2007 UDOT initiated a research project with Utah State University (USU) to evaluate how well different wildlife crossing structures in Utah work for passing mule deer, elk, and moose.

Dr. Cramer continues the study to examine how wildlife usage increases at wildlife crossings over time, if it is possible to add wildlife exclusion fencing to existing roads to funnel mule deer and other wildlife through culverts built for other uses, how well double cattle guards and wildlife guards work at keeping mule deer and elk off roads, and how well 5 feet escape ramps work at helping mule deer to escape the road right of way. Dr. Cramer's recent webinar for UDOT can be viewed at <http://connect.udot.utah.gov/p86429852/>



Mule deer doe leads young fawn through a new type of wildlife crossing.



Bull elk uses new wildlife crossing.

Using 35 remote motion-triggered cameras, wildlife were photographed by USU as they approached and used or repelled from culverts and bridges. In three years of monitoring, the cameras recorded over 25,000 mule deer passes through wildlife crossings, and bridges and culverts

built for other reasons. All bridge designs had 89% or better success rates, meaning 11% or less of the mule deer approaching the structure repelled away, while the rest went through. Not all culverts were as successful, with mule deer success rates of 45 to 95%. Culverts over 120 feet long had the highest rates of repulsion with mule deer. This translates into culvert design recommendations for mule deer that all crossings should be less than 120 feet long.



Mule deer bucks use wildlife crossing culvert.

The photographic evidence supports the statement that UDOT wildlife crossings are working for mule deer. Crossing designs that minimize lengths under the road, and maximize the width or span of the structure are the most successful in passing mule deer. Future research will help determine if any designs work in passing skittish elk in Utah, and if placing wildlife fencing at existing box culverts and bridges can motivate mule deer and elk to use these structures. The final research report to UDOT is available at: <http://www.udot.utah.gov/main/uconowner.gf?n=10315521671291686>.



Wellsville bull moose uses 170 feet long culvert.

This study continues with funding from UDWR and conservation organizations. Click [here](#) to view wildlife videos from this study on YouTube.

Dr. Dr. Cramer has presented findings in a webinar to UDOT staff. The webinar can be viewed and listened to at: <http://connect.udot.utah.gov/p86429852/>

For more information contact Dr. Patricia Cramer of USU at patricia.cramer@usu.edu

FHWA Launches Transportation Liaison Community of Practice Website

by Jaimye Bartak, AICP, Cambridge Systematics/U.S. DOT Volpe Center

In April, the Federal Highway Administration (FHWA) launched the new Transportation Liaison Community of Practice (CoP) website. Transportation liaisons are personnel housed at State DOTs and Federal and State resource and regulatory agencies that facilitate the environmental review and permitting processes for transportation projects. Liaisons are located throughout the country, and have professional expertise in biology, air and water quality, historic preservation, and other environmental disciplines.

In 2009, FHWA sponsored a study on the use of transportation liaisons across the country, and developed recommendations on the establishment and management of liaison positions. The new Community of Practice website is an outgrowth of that study and subsequent efforts to engage liaisons and their managers on the support and tools needed to maximize liaison effectiveness. There are approximately 100 funded liaisons nationwide.

Liaisons are active in a wide range of environmental streamlining activities, including drafting biological opinions, conducting programmatic consultations, or helping to select mitigation sites on a project. In addition, expertise and input from liaisons provided early-on in the transportation planning process can help State DOTs avoid or minimize environmental impacts of transportation projects, saving time and money while improving environmental outcomes.

The CoP website facilitates the exchange of knowledge and best practices through various features. The subject matter expert list, for instance, allows users to identify themselves as or consult with experts in areas such as NEPA, stormwater regulations, cultural resources, endangered species, or other disciplines. Registered users of the CoP may also access articles, presentations, technical documents, and other useful information in an ever-expanding resource library. In addition, a discussion board is currently under development that will enable peer-to-peer discussion on topics related to the professional roles and responsibilities of liaisons.

While advancing the state of practice, the website also aims to increase general awareness about liaisons, particularly among State Departments of Transportation (DOT) that may be interested in pursuing new liaison programs. Many State DOTs already have one or more transportation liaison posi-

tions established through funded or unfunded agreements with resource and regulatory agencies. State DOTs or FHWA may fund these positions, as authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

FHWA is encouraging current liaisons, liaison managers and interested State DOT and resource and regulatory agency staff to register for the website for full access to its features. State DOTs interested in establishing liaison programs will find helpful sample agreements and information on the benefits liaisons provide. FHWA is also soliciting resources for the website from registered users – such as case studies, articles, and best practices, as well as news about related programs and events – on an ongoing basis. Public users will be able to access the calendar and general information about the role and benefits of liaisons, as well as profiles of individual liaisons and the work they do in the field.

For more information on the Community of Practice, visit the [Transportation Liaison Community of Practice website](#). For more background on transportation liaisons and their role in SAFETEA-LU Planning Activities, see the 2009 [State Transportation Liaison Funded Positions Study](#).

The screenshot shows the homepage of the Transportation Liaison Community of Practice website. At the top, there is a navigation bar with the FHWA logo and a menu with items: Home, Planning and Environment, NEPA and Project Development, Streamlining/Stewardship, Historic Preservation, Section 4(f), and Water, Wetlands, and Wildlife. Below the navigation bar is a large banner for the 'Transportation Liaison COMMUNITY OF PRACTICE'. The banner includes a logo of two hands holding a plant, a description: 'A community of practice (COP) for transportation liaisons and liaison managers that promotes best practices and provides insight into emerging questions and issues', and a 'Join Now' button. Below the banner is a login section with fields for 'Username' and 'Password', and a 'GO' button. To the right of the login section is a list of links: LOGIN, ABOUT, RESOURCE LIBRARY, WHAT'S NEW, JOIN THE COP, SUBJECT MATTER EXPERTS, CALENDAR OF EVENTS, TELL US WHAT YOU THINK, and ADMIN. Below the login section is a 'Resource Library' section with a search bar and three links: 'Read Best Practices Case Studies', 'Read a Sample Document or Agreement', and 'Submit a Resource'. To the right of the Resource Library is a 'WHAT'S NEW' section with three news items: 'Call for Case Studies in Context Sensitive Solutions: Deadline June 15', 'View the April 3, 2012 Transportation Liaison National Webinar', and 'Army Corps of Engineers revises and renews nationwide permits'. Below the 'WHAT'S NEW' section is a 'Subject Matter Expert List' section with an 'EXPLORE' button.



Double Tree by Hilton
 South Portland, Maine
 September 16 – 19, 2012

ROAD ECOLOGY IN ECONOMICALLY CHALLENGING TIMES

DRAFT AGENDA

Sunday, September 16, 2012

6:00 PM – 7:00 PM **Meet and Greet** (Cash Bar)
 Dinner (on your own)

Monday, September 17, 2012

8:00 AM – 8:45 AM **Opening Comments & Welcome**
 STATE PANEL DISCUSSIONS

8:45 AM – 10:15 PM **Where We've Been since Fairlee, VT ~ Future Goals**
 10:45 AM – 12:00 PM **What Irene Taught Us – Response Process**
 12:00 PM – 1:00 PM **Buffet Luncheon**
 1:00 PM – 1:50 PM **What Is Known About Sedimentation and Noise Effects**
 ENDANGERED SPECIES

1:50 PM – 2:20 PM **Habitat Mitigation Banking: Proactive Habitat
 Conservation Planning for Endangered Species**

2:20 PM – 2:45 PM **FHWA Endangered Species Act (ESA) Webtool**
 2:45 PM – 3:15 PM **Break**

3:15 PM – 3:40 PM **MaineDOT Experiences with Critical Habitat**
 3:40 PM – 4:05 PM **Atlantic and Shortnose Sturgeon**

4:05 PM – 4:30 PM **Stream Simulation Design: Raising the Ecological Bar for Road/Stream**

Crossings

4:30 PM – 4:55 PM **Status of New England Cottontail**
 4:55 PM – 5:30 PM **Poster Session**

Tuesday, September 18, 2012

STREAM CROSSING AND AQUATIC RESOURCES

8:00 AM – 8:25 AM	Regional General Permit Discussion
8:25 AM – 8:50 AM	Healing the Thousand Cuts: Understanding and Reversing the Impacts of Road Crossings on Stream Connectivity
8:50 AM – 9:15 AM	Stream-Smart Road Crossing Workshop
9:15 AM – 9:40 AM	Stream Simulation in the DOT World: The Challenges, The Constraints and The Costs
10:10 AM – 10:35 AM	Movement and Growth of Brook Trout in Small, Coastal Streams in Maine, USA
10:35 AM – 11:00 AM	Maine Stream Barrier Survey
11:00 AM – 11:25 AM	Critical Linkages: Assessing Connectivity Restoration Potential for Culvert Replacement and Wildlife Crossing Structures in Massachusetts
11:25 AM – 12:00 PM	Maine Stream and Culvert Flow Table New Hampshire Stormwater Demonstration Table

TRANSPORTATION AND WILDLIFE INTERACTION

1:00 PM – 1:25 PM	Effects of Reduced Mowing on Rate of Deer Collisions
1:25 PM – 1:50 PM	Evaluating the Ecological Road Effect Zone in Adirondack Park
1:50 PM – 2:15 PM	The Cheapskate's Way to Resolve Roadside Beaver Problems
2:15 PM – 2:40 PM	Informed Placement of Wildlife Mitigation Measures: Using Turtle Crossing Signs as a Case Study in Ontario
2:40 PM – 3:05 PM	Maine Audubon Wildlife Road Watch: Not Just Chickens Cross the Road
3:25 PM – 3:50 PM	The Wild Side of Suburban Boston: A Volunteer Study Of Wildlife Underpasses in Concord, MA
3:50 PM – 4:15 PM	Experimental Tests of Tunnels and Barrier Options for Reducing Road Mortalities of Freshwater Turtles
4:15 PM - 4:45 PM	Spiny Softshell Turtle Monitoring Results for the Missisquoi Bay Bridge Project

Wednesday, September 19, 2012

PLANNING

8:00 AM – 8:25 AM	
10:35 AM – 11:00 AM	A New Interagency Approach to Minimize the Negative Effects of Bridge and Roadway Reconstruction on Wood Turtles (<i>Glyptemys insculpta</i>) in Massachusetts
11:20 AM – 11:45 AM	Why Can't We All Just Get Along? Developing Culvert Rules For the State of Maine
11:45 AM – 12:10 AM	Umbrella Wetland Mitigation Banking for Adirondack Park
12:10 AM – 12:35 AM	NJ Statewide Habitat Connectivity Plan