Chairman's Message
by Carol D. Cutshall
Director, Bureau of Environment
Wisconsin Department of Transportation

Thanks to the hard work of our committee members and friends, this has been an especially successful year. The report from last spring’s Conference on Environmental Research Needs in Transportation is out on the web at (http://www.trb.org/trb/meeting). Soon you will be able to get hard copies of the report. Until then, I urge you to take a look at it on the web.

We hope that states, AASHTO committees, private foundations and federal agencies, such as FHWA and EPA, will use the problem statements.

Our summer meeting in Durham, New Hampshire was great, even though numbers were down a bit due to state travel restrictions. The New Hampshire Department of Transportation (NHDOT) Commissioner and Deputy Commissioner took an active role in the meeting. This indicated their strong support for the environment. Our host, Bill Hauser, Environmental Director at NHDOT, developed broad-based technical panels, and we all came away with new ideas. Bill also has to be congratulated for the clam bake and the field trip to Franconia Notch where we saw the nation’s only two-lane interstate.

The Community Impact Assessment Subcommittee held its Summer Workshop in Madison, Wisconsin in August. Practitioners learned about a number of successful techniques used in working with communities during the development of transportation projects.

At the Summer Business Meeting of this Committee, we agreed to support the establishment of a Task Force on Ecology in Transportation. The group seeking Task Force status within the TRB structure is made up of some members of the Natural Resource and Environmental Stewardship Subcommittee plus others. Tom Linkous, Ohio DOT, is the Chair. TRB will make the final decision on establishment of the Task Force. If a Task Force is established and functions successfully for a period of time, the group can then petition TRB to become a full committee.

I am looking forward to seeing all of you in January at the TRB Annual meeting. The committee is sponsoring two paper sessions on environmental issues and a conference session on road ecology. We are also cosponsoring a paper session on remote sensing. In addition, there will be business meetings of the full committee, the Natural Resources and Stewardship Subcommittee, and the proposed Task Force on Ecology and Transportation. The Community Impact Assessment Subcommittee will hold a workshop on Sunday afternoon. Most of our meetings and paper presentations will be held on Tuesday and Wednesday, January 14 and 15. Details can be found at the TRB web site at http://www4.nas.edu/trb/onlinepubs.nsf/web/conferences

[If you have any comments or questions regarding TRB Committee A1F02, Carol can be reached at 608-266-9626 and by E-mail at carol.cutshall@dot.state.wi.us.]
Announcements

TRB Annual Meeting
Washington, D.C.
January 12-16, 2003

We hope all readers can make it to the 82nd annual meeting of the Transportation Research Board. Details are already in the mail and on the TRB website. More than 2,200 presentations and 450 sessions are planned. The schedule related to the A1F02 Committee follows:

Sunday, January 12, 1:30 - 5:00 pm, Hilton Hotel
Session #137, Community Impact Assessment Workshop

Tuesday, January 14, 3:45 - 5:30 pm, Bancroft Room, Hilton Hotel
Meeting: A1F02(1) Subcommittee on Natural Resources and Stewardship

Tuesday, January 14, 3:45 - 5:30 pm, Marriott Hotel
Session #527, Remote Sensing Tools for Transportation
Sponsored by Committee A1F02 and Committee A2A01 (Photogrammetry, Remote Sensing, Surveying and Related Automated Systems)

Tuesday, January 14, 7:30 - 9:30 pm, Bancroft Room, Hilton Hotel
Meeting: Proposed Task Force on Ecology and Transportation

Tuesday, January 14, 7:30 - 9:30 pm, Coolidge Room, Marriott Hotel
Meeting: The Joint Task Force on Context Sensitive Design/Solutions
Sponsored by Committee A1F02, Committee A2A05 (Landscape and Environmental Design), Committee A2A02 (Geometric Design), Committee A2A04 (Roadside Safety Features), Committee A1D04 (Public Involvement in Transportation), Committee A4002 (Tort Liability and Risk Management), and Committee A1F05 (Historic and Archeological Preservation in Transportation)

Wednesday, January 15, 8:00 am - 12:00 noon, Caucus Room, Hilton Hotel
Meeting: A1F02 Environmental Analysis in Transportation Committee

Wednesday, January 15, 2:30 - 4:00 pm, Jefferson East Room, Hilton Hotel
Session #690, Measuring and Valuing Environmental Impacts and Benefits (Sponsored by A1F02)

Wednesday, January 15, 4:30 - 6:00 pm, Jefferson East Room, Hilton Hotel
Session #719, Environmental Analysis and Decision

Making
Sponsored by A1F02
Wednesday, January 15, 7:30 - 9:00 pm, Hilton Hotel
Session #749, Ecology and Transportation: Wildlife Linkages
Sponsored by A1F02

Some related meetings and sessions:

Monday, January 13, 10:15 am - 12:00 noon, Hilton Hotel
Session #263, Innovative Planning Tools to Address Title VI and Environmental Justice
Sponsored by A1T52 (Task Force on Environmental Justice in Transportation)

Monday, January 13, 2:30 - 5:30 pm, Hilton Hotel
Session #309, Energy and Environmental Analysis (Poster Session)

Monday, January 13, 2:30 - 5:30 pm, Marriott Hotel
Session #310, Linear Resource Identification, Evaluation, and What To Do Next (Poster Session)

Monday, January 13, 3:15 - 5:30 pm, Marriott Hotel
Meeting: A3B05(2) Subcommittee on Animals and Vehicles

Monday, January 13, 3:45 - 5:30 pm, Hilton Hotel
Session #343, Is Your EIS Legally Sufficient? Or Can Your Attorney Defend You with a Straight Face?

Tuesday, January 14, 7:30 - 9:30 pm, Marriott Hotel
Session #527, Remote Sensing Tools for Transportation
Sponsored by Committee A1F02 and Committee A2A01 (Photogrammetry, Remote Sensing, Surveying and Related Automated Systems)

Tuesday, January 14, 7:30 - 9:30 pm, Coolidge Room, Marriott Hotel
Meeting: The Joint Task Force on Context Sensitive Design/Solutions
Sponsored by Committee A1F02, Committee A2A05 (Landscape and Environmental Design), Committee A2A02 (Geometric Design), Committee A2A04 (Roadside Safety Features), Committee A1D04 (Public Involvement in Transportation), Committee A4002 (Tort Liability and Risk Management), and Committee A1F05 (Historic and Archeological Preservation in Transportation)

Tuesday, January 14, 9:00 am - 12:00 noon, Shoreham Hotel
Session #438, Public Involvement in Transportation
Sponsored by A1F02

Tuesday, January 14, 9:00 am - 12:00 noon, Shoreham Hotel
Session #438, Public Involvement in Transportation
Sponsored by A1F02

Tuesday, January 14, 9:00 am - 12:00 noon, Shoreham Hotel
Meeting: A1F02 Committee on Environmental Issues in Transportation Law

Tuesday, January 14, 9:00 am - 12:00 noon, Shoreham Hotel
Meeting: A1C06(1) Joint Subcommittee on Community Impact Assessment

Tuesday, January 14, 4:30 - 6:00 pm, Jefferson East Room, Hilton Hotel
Session #690, Measuring and Valuing Environmental Impacts and Benefits (Sponsored by A1F02)

Tuesday, January 14, 1:30 - 5:30 pm, Marriott Hotel
Meeting: A2A05 Committee on Landscape and Environmental Design
Announcements

Tuesday, January 14, 7:30 - 9:30 pm, Hilton Hotel
Meeting: A1F05 Committee on Historic and Archeological Preservation in Transportation

Wednesday, January 15, 8:00 - 9:45 am, Shoreham Hotel
Session #613, Environmentally Sensitive Construction

Wednesday, January 15, 8:00 am - 12:00 noon, Hilton Hotel
Meeting: A1C06 Committee on Social and Economic Factors of Transportation

Wednesday, January 15, 9:00 am - 12:00 noon, Marriott Hotel
Session #629, Context-Sensitive Design Around the Country (Poster Session)

Wednesday, January 15, 2:30 - 6:00 pm, Hilton Hotel
Meeting: Task Force A1T52 Environmental Justice in Transportation

We hope you can attend the Annual TRB meeting in Washington, D.C. this January.

**TRB A1F02 Summer Workshops**

**2003 Summer Workshop**
**Wilmington, NC**
**July 14-17, 2003**

The 2003 summer workshop of TRB Committee A1F02 is planned for Wilmington, North Carolina and is being hosted by the Center for Transportation and the Environment (CTE) and the North Carolina Department of Transportation. The workshop is tentatively scheduled for July 14-July 17, 2003 at the Hilton Wilmington Riverside Hotel in Wilmington. Information will be out soon about the upcoming workshop.

**2002 Summer Workshop Recap**
**Durham, NH**

The Transportation Research Board’s Environmental Analysis in Transportation Committee (A1F02) held its 2002 summer workshop from July 29-Aug. 1 in Durham, NH. Comments from workshop host Bill Hauser, Administrator, Bureau of Environment, New Hampshire Department of Transportation (NHDOT), as well as from other attendees indicate the workshop was very successful. Bill was very pleased with the written feedback, as well as the numerous in-person compliments received at the conclusion of the workshop.

He provided some facts and figures. There were 102 registered participants, 19 registered guests, and 25 states represented (not necessarily just DOTs, but consultants and FHWA folks, too). Although sponsored by NHDOT, there was a northern New England accent to the workshop; many participants/guests ate evening meals in nearby Maine, and the field trip was conducted on Vermont-chartered buses which drove attendees to the White Mountains of New Hampshire and then to York, Maine for a downeast clambake.

A Workshop Evaluation Summary indicates that 95% of the participants who submitted an evaluation form rated the workshop above average to excellent. The workshop was frequently identified as being very well organized and one that offered quality presentations on timely, pertinent topics which addressed current challenges. The substantive information presented was viewed as extremely beneficial to all attendees. The participants enjoyed the informal approach and the extensive opportunities to network with an impressive diversity of agencies and groups from across the nation. The Wildlife Scanning Tour was mentioned several times as being of particular interest. The participants found the location and facilities very comfortable and accommodating. Bill’s hard work, along with the exemplary efforts of his staff, was recognized as a major factor for the workshop’s success.

A few suggestions were made to enhance next year’s event. These included:

- Increase the focus on ecological aspects and solutions to projects with more information on ecology/environment issues in general
- Address the problem of missed information when having split sessions - how can everyone get the information presented at all sessions, not just the ones the participants could attend?
- Have presentations include case studies (real situations)
- Decrease the amount of travel time for field trips
- Provide attendees with more information to familiarize them with the surrounding area for dining, shopping and recreation
- End the workshop with a “where do we go from here” discussion.

The following reports about the Durham meeting, courtesy of BNA PLUS, describe some of the highlights of the mid-year meeting. Text is taken from Transportation / Environment Alert; Volume 4, Issue 48, dated August 9, 2002 and sponsored by AASHTO’s Environmental Technical Assistance Program. Thanks to BNA PLUS for allowing us to adapt their report for this newsletter.

**Senate Staff Works To Draft ‘Principles’ As Committee Gears Up On Streamlining**

Senate staff are working to craft principles that will be the basis for environmental streamlining provisions of the surface transportation reauthorization bill, a Senate committee staffer said Aug. 1 at TRB’s Environmental Analysis in Transportation Committee meeting.

Despite protests from the environmental community that environmental streamlining legislation is not necessary, senators on the Environment and Public Works Committee “are not going to back down” on
Efforts to improve the environmental review process, according to Megan Stanley, minority counsel for the Senate panel. In addition, she said, an integrated approach to streamlining could address the "vital few" areas of concentration for the agency - congestion; safety; and environmental protection.

Senators "still think transportation projects take too long" and that the environmental review process can be improved, according to Stanley. "There will be a streamlining provision" in legislation to reauthorize the Transportation Equity Act for the 21st Century, she added.

But Senate streamlining provisions likely will take a different approach than Section 1309 of TEA-21, she said. The committee is likely to take a more "holistic view" of integrating transportation planning and project development.

Although the streamlining language in TEA-21 has spurred progress - including many state and regional streamlining initiatives, a federal interagency working group, and successful pilot projects - the law was never properly implemented and did not achieve the intent of Congress to establish a coordinated environmental review process, she said.

In preparation for a Sept. 18 Senate committee hearing on environmental streamlining and project delivery, Stanley said committee staff were looking to develop principles that will "establish a clear intent" for new legislative language.

The Senate language will not mirror any environmental streamlining bills that have been circulated - such as draft TEA-21 streamlining provisions floated in the House Transportation and Infrastructure Committee and language on streamlining reviews for aviation projects.

The House draft -- which would specify time periods for agency reviews and the decisionmaking authority of the Federal Highway Administration - is "similar to regulatory language" and is "very prescriptive," Stanley said. "That's not where we're going to end up," she added.

"We will craft whatever we do so as not to hinder what good efforts are already underway," on streamlining Stanley said.

According to Stanley, major issues that are being discussed relative to streamlining include:

- Time periods for review;
- Purpose and need;
- Reasonable alternatives;
- Secondary and cumulative impacts;
- Mitigation;
- Resource sharing;
- Dispute resolution; and
- A statute of limitation for lawsuits.

Pilot projects underway across the country are an essential element in addressing streamlining, Stanley said. She pointed to a partnering agreement to streamline the review process for the Interstate 93 widening project in New Hampshire that has been held up as a model by Sen. Bob Smith (R-N.H.), ranking Republican on the Senate panel. In addition, she said, an integrated planning process underway in Riverside County, Calif., has been successful in consensus building and up-front environmental protection.

Stanley also urged the audience to submit comments to a new interagency task force working to modernize National Environmental Policy Act (NEPA) analyses and documentation. The White House Council on Environmental Quality's NEPA Task Force was gathering comments on ways to improve coordination among all levels of government and the public in the NEPA process. Comments were accepted until Aug. 23. More information is available at www.whitehouse.gov/ceq/ntf.

The Senate's legislative timetable for TEA-21 reauthorization included a Sept. 18 hearing on streamlining, draft reauthorization legislation in the fall or winter, introduction of a bill in February, legislative hearings in March or April, a committee report in May, Senate passage in July, and conference and final passage by September 2003, she said.

**FHWA Prepares for Reauthorization, Continues Efforts on Streamlining, Stewardship**

In remarks to the A1F02 business meeting on July 29, Fred Skaer, Director of the Federal Highway Administration's Office of NEPA Facilitation, gave an update on the department's efforts regarding reauthorization of the surface transportation law and outlined agency priorities on environmental streamlining and stewardship.

Skaer said the administration's Transportation Equity Act for the 21st Century reauthorization bill will accompany the release of the next budget in February 2003. Skaer did not offer any specifics on legislative options being considered by the administration. "Until there's a final administration proposal, everything is up in the air," he said.

FHWA does see the need for a cooperative approach for identifying and conducting new environmental research, according to Skaer, including a continuous stream of increased funding for such research.

He mentioned that streamlining legislation could be proposed in Congress even prior to TEA-21 reauthorization, referring to a draft floated by House Transportation and Infrastructure Committee chairman Don Young (R-Alaska). But he added that the Bush administration had not taken a position on the House draft or similar language floated in the Senate.

Regarding FHWA priorities, Skaer pointed to Administrator Mary Peters' focus on the "vital few" areas of transportation projects - congestion; safety; and environmental streamlining and stewardship.
Streamlining, Stewardship Focus
Over the last six months, he said, FHWA had engaged field staff and headquarters staff to come up with strategies on streamlining and stewardship.

Areas of focus included:
- Improving the quality of the environmental process and decisionmaking. The agency was asking division offices to support context sensitive solutions and will push divisions to partner with states on such solutions.
- Pushing for better-integrated processing - from planning to project development to construction. The agency was looking for better integration of transportation and environmental planning, including enhanced coordination with watershed and ecosystem planning.
- Addressing timelines for project delivery. The agency was working on web-based project-tracking for projects with environmental impact statements and environmental assessments, he said. Division offices were being encouraged to work with states to develop schedules for projects. Categorical exclusions would be addressed at a later time.
- Increasing the number of “exemplary processes” that demonstrate environmental stewardship, such as habitat conservation plans and ecosystem management approaches that look at the entire landscape. FHWA would be looking for about 30 such “big-ticket innovations” over the next few years, focusing on types of projects “where transportation can have a role in a sustainable environmental future.”

Other Efforts
Skaer encouraged the committee to make use of FHWA’s Re:NEPA community of practice web site, which is continually updated with new reference materials and “works in progress.” In addition, the agency’s environmental streamlining web site is being reorganized to make it more searchable, he said. And the monthly “Successes in Streamlining” newsletter will continue to publicize best practices throughout the country and refer readers back to the streamlining web site.

The agency also has focused on environmental management systems for transportation agencies and has released a memorandum to field offices on the subject (see related article in the August 2, 2002 Transportation/Environment Alert). The memorandum urged FHWA support to states that wish to implement such systems, and pointed out that such efforts would be eligible for federal aid funding.

FHWA also had been working with other federal agencies on environmental streamlining - particularly on implementing programmatic approaches that can make the environmental review process more efficient.

In addition, the agency had just negotiated hiring a full-time employee in the Fish and Wildlife Service. The new employee - Joe Burns - will be funded by FHWA to focus solely on transportation issues, Skaer said.

FHWA’s environmental streamlining web site (including a link to the Re:NEPA site) can be accessed at http://www.fhwa.dot.gov/environment/strmlng.

Panelists Review Recent Efforts on Delegation of Authority to States
Delegation of environmental review authority for highway projects from the federal level to state agencies has received increasing attention as reauthorization of the surface transportation law approaches.

A panel of federal, state, and private sector officials reviewed the issue at a July 30 session of the TRB A1F02 committee workshop.

A study conducted under the National Cooperative Highway Research Program (NCHRP) found that delegation of authority for routine projects can be an effective means to speed up the project development process, according to Joe Crossett, of Trans Tech Management Inc., which prepared the report.

The report documented delegation agreements that are a being used successfully in several states, including delegation of authority for types of projects - such as categorical exclusions under the National Environmental Policy Act -- and delegations involving specific environmental requirements.

According to Crossett, delegation has “created nervousness” at the federal level. “There is a reason federal agencies oversee federal law,” he said.

At the same time, the environmental community is concerned that delegation of federal review authority will result in a roll-back of environmental laws.

But the cases outlined in the study showed that delegation can result in quicker processing of simple projects and can free up federal staff time to work on more complex projects. The study also found that delegation typically did not result in a roll-back, but rather in improved environmental protections, and that federal and state agencies have been able to work within existing legal authorities, Crossett said.

FHWA Supports “Appropriate” Delegation
Fred Skaer, director of FHWA’s Office of NEPA Facilitation, told the group that his agency supports “any and all appropriate delegation.”

But he cautioned that delegation is a “very delicate subject” and that federal agencies still are held accountable for the outcome when decisionmaking authority is delegated to states.

Skaer stressed that currently there are delegation opportunities that are not fully realized under existing legal authorities - particularly the use of programmatic agreements under which states assume partial or total authority over a type of program or project under specified conditions.
For example, he said, programmatic delegation has been successfully implemented under each of the transportation sector’s “big four” environmental laws:

- Reviews for historic properties and parkland under Section 4(f) of the Department of Transportation Act. FHWA has approved an agreement with the Ohio DOT, marking the first programmatic Section 4(f) delegation.
- Wetlands regulations under Section 404 of the Clean Water Act. Although allowed by the act, only two state resource agencies have been delegated authority for Section 404 permitting. General permits and letters of permission are more common, and FHWA is working with the Army Corps of Engineers to broaden such efforts.
- Endangered Species Act requirements. FHWA is working with the Fish and Wildlife Service and the National Marine Fisheries Service to facilitate programmatic biological assessments. FHWA now is funding a position in FWS to focus on transportation issues.
- Historic preservation reviews under Section 106 of the National Historic Preservation Act. Vermont is working under a broad agreement that delegates complete Section 106 authority to the state’s transportation agency.

A ‘Legitimate Question’ for Reauthorization

Skaer also stressed that delegation is a legitimate question that could be resolved as part of the upcoming reauthorization of the Transportation Equity Act for the 21st Century.

The agency’s proposal for reauthorization will be put forward next February, he said. Although an approach to delegation has not been determined, the agency is “looking at it very carefully,” he said.

He said options that could be considered might include:

- Delegation of authority for categorical exclusions from NEPA;
- Delegation for projects with categorical exclusions and environmental assessments; or
- Delegation of everything: projects that require environmental impact statements, environmental assessments, or those that are categorical exclusions.

Politics will play a role in the debate, with the opponents stressing that approaches to delegation must consider the least capable state.

Nevertheless, the agency is seeing more promise regarding delegation of system preservation-type projects, Skaer said. There is growing support among the environmental community for approaches that will make it easier to rebuild existing transportation facilities and to advance projects that enhance the environment, he added.

Accountability

In considering delegation approaches, a key concern for federal agencies is accountability. Skaer pointed to the phrase “trust but verify” as a guideline for delegation agreements.

To ensure success, Skaer advised officials implementing delegation to:

- take the time to train;
- stick with the letter of the agreement - do not try to stretch what is allowable; and
- monitor the outcome, including a feedback loop.

Vermont Effort Graded "A+"

The Vermont Agency of Transportation’s (VAOT) delegation of authority for Section 106 historic preservation reviews has been singled out as a model agreement.

The agreement was designed to streamline the process for section 106 reviews in Vermont, Scott Newman, the agency’s historic preservation officer, told the TRB audience. It includes the creation of two new positions within the state transportation agency - an historic preservation officer and an archeologist - who conduct reviews of agency projects without the need for further review by state or federal officials.

The agreement required development and implementation of a manual of standards and guidelines that the agency must follow. According to Newman, the agreement has been very successful: it enhances the decisionmaking process, allowing implementation of standard, pre-approved mitigation measures and avoiding further memoranda of understanding.

Newman told the meeting that VAOT “got an A+” on its first annual report on the program submitted to the state historic preservation officer and FHWA.

Because of the success of the program, Newman said he would like to take the same approach to “tame Section 4(f).” He also said he would like to increase the range of the Section 106 agreement to cover rail, transit, and aviation projects.

Details on the Vermont agreement are available on the Web at http://www.aot.state.vt.us/archaeology/design/manual.htm.


New Director Outlines Goals, Activities for AASHTO Center for Environmental Excellence

AASHTO’s new Center for Environmental Excellence will provide a one-stop shop for state transportation agencies to access information and resources and will provide training and technical assistance to help state DOTs deliver environmentally sound projects, according to Kris Hoellen, the new Center director.
Hoellen outlined the center’s goals at the TRB A1F02 business meeting July 29 and before a general workshop audience on Aug. 1.

The Center’s mission will be three-fold, Hoellen said:

- Information sharing. Efforts will include creation of a Web-based clearinghouse and referral center; updating of the 1999 best practices report, “Raising the Bar”; continuation of AASHTO’s environmental stewardship demonstration projects; and marketing the environmental benefits of transportation.
- Training, problem solving, and partnership-building. Targeted activities include classroom-type training, workshops, meetings, and partnership-building exercises. For example, one effort will focus on introducing environmental management systems to state DOTs, including a workshop and development of a template for EMS systems. Another focus will be development of programmatic agreements, including “how-to” sessions and negotiation strategies.
- Technical Assistance. A pre-screened roster of experts will be available to help states on project- or program-level activities. AASHTO environmental specialist Wayne Koher already has conducted three pilot studies: one focused on partnership building at the California DOT, and two additional projects to help DOTs in North Carolina and Maryland develop systematic approaches to implement streamlining and stewardship efforts. All three states have been pleased with the technical support efforts, and the Center has received several additional requests for assistance.

Hoellen said the Center’s first-year activities are being supported by the Federal Highway Administration. At the end of the first year, the Center’s activities will be re-evaluated and adjusted, as necessary.

Hoellen also solicited participants’ feedback on current and future Center activities. More information on the Center is available from Hoellen by e-mail at khoellen@aashto.org or by telephone at 202-624-3649.

**Other Sessions in Brief**

- Recycled Materials Resource Center (RMRC): Dr. Jeffrey Melton of the University of N.H. gave an overview of RMRC, including a rundown of ongoing research projects related to the physical and environmental performance of recycled materials in highways. Information on the center, including a listing of ongoing and future research, is available on the Web at http://www.rmmc.unh.edu.
- Environmental Conflict Resolution: FHWA’s Fred Skaer gave an overview of the agency’s efforts on developing a dispute resolution system for transportation projects. The U.S. DOT system includes development of elevation procedures for interagency disputes; development of a conflict resolution guidance; regional workshops; and development of a transportation roster of qualified neutral mediators and facilitators coordinated by the U.S. Institute for Environmental Conflict Resolution. Skaer urged transportation officials to make use of the Institute’s transportation roster to help manage disputes that may arise as part of the environmental review process. Two of the roster members - Suzanne Orenstein and John Wofford - outlined their approaches to developing consensus. Both facilitators stressed the importance of focusing on the interests of the negotiating parties. An explanation of the transportation roster and background on DOT’s dispute resolution system can be accessed in the April Successes in Streamlining newsletter on the FHWA streamlining web site, at www.fhwa.dot.gov/environment/streaming/index.htm.
- Wildlife Connectivity Scanning Tour: David Scott, director of project development at the Vermont Agency of Transportation, gave an overview of an international scan on wildlife and transportation. The tour reviewed techniques used in five countries to address wildlife passage, focusing primarily on green bridges as well as some wildlife tunnels. Scott said some techniques learned on the scan are being implemented in Vermont, creating a “win-win” situation for regulatory agencies and the transportation agency. He urged transportation officials to “think creatively” to address wildlife concerns.
- Right-of-way Appraisals and Hazardous Materials: Dale O’Connell of the NHDOT and Margaret Fulton, of the N.H. attorney general’s office, discussed the recent trend to weigh cleanup costs when determining a property’s fair market value in right-of-way appraisals. NHDOT has developed a new protocol to screen all sites as early as possible so that any contamination can be taken into account, the speakers said. Brian Desmarais, of Jacques Whitford Co., Inc., described an Internet hazardous materials site management database and an automated hand-held portable computer and digital camera/GPS for collection of field data.
- Partnerships Between Land Use and Transportation: A panel of state officials from New Hampshire discussed successful efforts to integrate land use and transportation planning in the state, including development of a “Grow Smart New Hampshire” tool kit. Case studies included the Route 16 corridor management plan, the Route 101 corridor study, the Route 2 study, and the Interstate 93 project.
- Stream Restoration: Dr. Peggy Larson of Penn State University discussed research on alternative methods to protect bridges and structures from “scour” erosion and other impacts using various stream flow altering devices. Case studies of stream restoration techniques by Scott Farrell, of Normandeau Associates, also were presented.
- Update from the Center for Transportation and the Environment. John Fisher, Director of the Center for Transportation and the Environment at North Carolina State University, and James Martin, associate
secondary and cumulative impacts: a panel of appropriate methods, how to apply methodologies, and guidelines to select Wisconsin-specific data to be used in methodologies, projects in the NEPA context, availability of methodologies applied to major transportation to a memorandum of understanding on U.S. ing a secondary land use impact methodology related Wisconsin DOT, discussed a workshop on development need to be encouraged. Carol Cutshall, New England region and said alternative methods of sprawl due to the high per-capita land use in the Monahan said she was concerned with the impacts of for such impacts is the same as FHWA’s: mitigation having to be determined on a case-by-case basis. Cutshall provided the following list of Internet resources on indirect and cumulative impact analysis: MODELS: • CommunityViz: www.communityviz.com • Land Use Evolution and Impact Assessment: www.rehearsal.uiuc.edu/projects/LEAM • Land Use Transformation Model: www.ltm.mus.edu • MEPLAN: www.meap.co.uk/meap/ • REMI: www.remi.com • Smart Growth INDEX: www.crit.com/home_index.htm • Social Costs of Alternative Land Use Development Scenarios (SCALDS): www.fhwa.dot.gov/scalds/scalds.htm • Surface Transportation Efficiency Analysis Model (STREAM): www.fhwa.dot.gov/stream/index.html • TRANSIMS: http://www-transims.tsasa.lanl.gov/ • TRANSUS: www.modelistica.com • Urban Land Use Allocation Model (ULAM) www.wulam.org • UrbanSim: www.urbansim.org • What If?: www.what-if-pss.com GENERAL RESOURCES: • U.S. DOT Travel Model Improvement Program (TMIP): http://tmip.fhwa.dot.gov • FHWA Toolbox for Regional Policy Analysis: www.fhwa.gov/planning/toolbox/index.htm • Project Gigalopolis (USGS Urban Land Cover Modeling) www.nggia.ucsb.edu/projects/gig • Brookings: Center on Social and Economic Dynamics (Agent-based modeling): www.brook.edu/dybodocroot/ES/dynamics/models/ • Update on FHWA Resource Centers: Several officials from FHWA’s Resource Centers gave presentations describing the role of the centers and recent activities and encouraging transportation community to take advantage of the centers’ expertise. The mission of the Resource Centers is to provide technical and program support, training, and technology deployment to FHWA, state DOTs, and other customers, according to Dave Gamble and Vance Hobbs, of the Eastern Resource Center. Some of the ongoing efforts include tailored training on NEPA; a scanning tour on stormwater management; developing tools on secondary and cumulative impacts; and development of an interactive training CD ROM on Section 4(f). Additional information on the Resource Centers is available on the FHWA web site at http://highwayexpertise.fhwa.dot.gov. • New TRB Task Force on Ecology Proposed: A proposal to create a new TRB Task Force on Ecology in Transportation was endorsed by the A1F02 committee at the July 29 business meeting. Estab-
lishment of the Task Force would be the first step to becoming a new TRB standing committee. The Task Force would take on issues of ecology that had been under the purview of the A1F02 Natural Resources Subcommittee. That subcommittee recently changed its name to include environmental stewardship, and has increasingly been focused on stewardship-type efforts. The task force would address ecological issues identified at the recent Environmental Research Needs Conference, including habitat fragmentation and connectivity; aquatic habitat; riparian corridors; secondary and cumulative impacts on ecological resources; mitigation monitoring; and endangered species mitigation and conservation. Work of the Task Force would be coordinated with other committees of TRB. The proposal still is working its way through the TRB process.

- Field Trip: Tour of Interstate 93 and Franconia Notch: New Hampshire DOT hosted an all-afternoon and evening field trip touring the scenic Interstate 93 through the White Mountain National Forest and Franconia Notch State Park. Construction of the Interstate through Franconia Notch was a complicated process that ultimately led to incorporation of unique features, including a two-lane parkway design to minimize the impacts on the park.
- Other sessions: Additional conference sessions included a panel discussion on AASHTO’s Environmental Stewardship Demonstration Projects and a discussion of National Pollutant Discharge Elimination System (NPDES) Phase II.

**2003 International Conference on Ecology and Transportation: “Call for Abstracts”**

The next International Conference on Ecology and Transportation has been scheduled for August 24-29, 2003, at the Lake Placid Resort in Lake Placid New York. The theme for the conference is “Making Connections.” The Federal Highway Administration, in cooperation with numerous federal and state agencies, non-government organizations, and consulting firms, is a key co-sponsor of the event, along with the American Association of State Highway and Transportation Officials Standing Committee on the Environment, and the Transportation Research Board Committee on Environmental Analysis in Transportation. New York State Department of Transportation is the host agency and also an official sponsor of ICOET 2003.

The ICOET 2003 Planning Committee has issued a “Call for Abstracts” for papers and presentations to be included in the technical program and poster session. Abstracts submitted for the technical program must focus on research results, applications, and best practices in the following areas, while abstracts for poster presentations must focus on new or in-progress research in these areas:

- Advanced Technology Applications: use of geographic information systems (GIS), global positioning system (GPS) applications, and other advanced technologies for the effective collection and analysis of ecological data related to transportation programs and projects
- Avian Studies: preservation, restoration, and enhancement of bird populations impacted by transportation
- Context-Sensitive Solutions: structural and non-structural techniques that effectively address both human (e.g., safety) and ecological concerns related to the design, construction, and maintenance of transportation facilities
- Endangered and Threatened Species: successful strategies for implementation of the Endangered Species Act in transportation programs and projects
- Fisheries & Aquatics: preservation and enhancement of vertebrate and invertebrate amphibian and fish populations impacted by transportation
- Process and Planning Enhancements: examples of innovative partnerships, inter-agency coordination, and effective integration of policy/planning/research to applied technology and performance monitoring for the purpose of both improving the consideration of ecological concerns in transportation planning and decision-making as well as achieving long-term sustainability of ecosystems and transportation systems
- Vegetation & Roadsides: effective management and use of native and non-native plant species, as well as the control of invasive species, in transportation rights of way
- Water Quality: transportation-related stormwater and watershed initiatives that enhance and protect ecosystems
- Wetlands, Streams, Coastal Issues: creation, restoration, enhancement and other mitigation measures that ensure the ecological integrity of wetlands, streams, and coastlines impacted by transportation
- Wildlife Enhancement: activities that conserve, enhance, and protect various wildlife species (ranging from reptiles to small mammals to large carnivores) that are impacted by transportation

For more information on the conference and how to submit an abstract, please visit the conference web site, hosted by the Center for Transportation and the Environment, at [http://www.ite.ncsu.edu/cte/icoet/03abstracts.html](http://www.ite.ncsu.edu/cte/icoet/03abstracts.html). The deadline for submissions is December 31, 2002.
Subcommittee Reports

Liaison Subcommittee Report
by Amanda Hardy
Research Ecologist, Western Transportation Institute, Montana State University

A recent workshop in Banff National Park provided transportation and resource management professionals a unique opportunity to see animal exclusion fencing and crossing structure installations that allow wildlife to safely cross the Trans-Canada Highway, and to learn how wildlife mitigation issues can be successfully incorporated into the transportation planning process.

In September, the Western Transportation Institute (WTI) sponsored the “Wildlife Crossing Structure Field Course” in cooperation with the Federal Highway Administration (FHWA), the Center for Transportation and Environment (CTE) at North Carolina State University, and the US Forest Service (USFS). The goal of the course was to give engineers, administrators and resource management professionals examples of the Context-Sensitive Design (CSD) approach to transportation projects that cross through important habitat for wildlife. The CSD approach places the preservation of historic, scenic, and ecological resources, such as wildlife and habitat, at an equal value with mobility, safety, and economic considerations in the development of transportation projects.

Sponsors selected Banff National Park as the setting for the field course to learn from Canada’s experience with mitigating wildlife-transportation conflicts on the high traffic volume Trans-Canada Highway, which runs through the park. Over the past 20 years, Parks Canada has installed wildlife fencing in conjunction with 24 wildlife crossing structures of different designs, to allow animals to pass safely under or over the busy highway. Participants were given a first-hand view of the highest concentration of these structures in the world, and they offered an excellent example of mitigation for wildlife impacts in the transportation field.

The Banff crossing structures and fencing are notable because of their success in facilitating safe passage for wildlife across the freeway and significantly reducing the amount of roadkill. Since November of 1996, the Parks Service has recorded 41,700 crossings by eleven large mammal species including deer, elk, moose, bear, wolves and coyotes. Vehicle collisions with elk, previously the most frequent victim involved in animal-vehicle collisions on the Trans-Canada Highway in Banff National Park, have decreased by 95 percent.

Participants in the three-day course attended workshops to learn and discuss the many aspects of incorporating wildlife mitigation into transportation projects. Topics featured in the field course included planning and permitting issues; technical considerations such as cost, placement, design, landscaping, and maintenance; and performance monitoring methods of wildlife mitigation projects.

The three primary speakers included Dr. Bruce Leeson, Environmental Scientist for Parks Canada; Dr. Anthony Clevenger, independent biologist conducting research on the effectiveness of the crossing structures and fencing in Banff National Park; and Terry McGuire, Highway Service Center Director for Parks Canada. These Canadian representatives shared their experiences about the wildlife fencing and crossing structure installations in Banff National Park. Participants heard detailed presentations on the history, planning process, engineering and effectiveness of the Banff project. Participants then spent a day in the field visiting and studying the various fencing and wildlife crossing structures, which include bridge footpaths, metal culverts, open-span underpasses, and overpasses.

Participants included representatives from FHWA (20; including 7 District Administrators), state DOTs (12), USFS (6), Canadian representatives (6), universities (4), state fish & game departments (2), non-government organizations (2), the US Fish and Wildlife Service (1), the Transportation Research Board (1), and private consultants (1). Moderators and speakers for the workshops included research ecologists from WTI, and officials from FHWA, USFS, the US Fish and Wildlife Service, Washington State Department of Transportation, and CTE.

This course represented the first time a diversified group of transportation and resource managers from outside Canada has come to study the park’s highway mitigation system. Sponsors hope to promote not only increased awareness of context sensitive wildlife mitigation, but also the value of technology transfer across international borders. To ensure that the lessons learned and areas for further study in the field of wildlife-transportation interactions are shared with other interested parties, CTE documented the “Wildlife Crossing Structure Field Course” and planned to distribute this information on the web by mid-October. Watch the WTI website (http://www.coe.montana.edu/wti/) for the link to the CTE site or go directly to the “Education and Training” section of the CTE’s Wildlife, Fisheries and Transportation Gateway (http://www.itre.ncsu.edu/cte/gateway/home.html) for the technology transfer products from this event.
NCHRP Project 25-22, Technologies to Improve Consideration of Environmental Considerations in Transportation Decisions: CD-ROM Available
by Marcy Schwartz, CH2M Hill, Portland, OR and Wayne Kober, Wayne W. Kober, Inc., Dillsburg, PA
The CD-ROM as a final product of National Cooperative Research Program Project 25-22, "Technologies to Improve Consideration of Environmental Concerns in Transportation Decisions", is now available from the Transportation Research Board (TRB) Bookstore. The project was intended to advance the use of current and emerging technologies to achieve improved and implementable transportation decisions.

The CD-Rom includes the following items:
- A report profiling 21 different technologies
- A fictional case study demonstrating examples of many of these technologies and their applicability to a portion of the transportation decision-making process
- A transportation decision making process diagram showing where the technologies are applicable in the process

The following individuals were instrumental in guiding and conducting the research:
- Principal Researcher-Marcy Schwartz, CH2M Hill
- Project Manager-Tim Hess, NCHRP
- Research Panel Chair, Wayne Kober, Wayne W. Kober, Inc.
Research Panel Members:
- Kathleen Ames, Illinois Department of Transportation
- Robert Crim, Florida Department of Transportation
- John Fisher, Center for Transportation and the Environment, NC State University
- Mark Kross, Missouri Department of Transportation
- Willard McCartney, Michael Baker, Jr. Inc.
- Tim Quinn, Minnesota Department of Transportation
- Brian Smith, California Department of Transportation
- Chris Newman, Federal Highway Administration

You can access the TRB Bookstore at www.nationalacademies.org/trb/bookstore/ to order the CD-ROM. The book code of the CD-ROM is CRPD14 and its price is $15.00.

A continuation of NCHRP 25-22 was approved by the AASHTO Standing Committee on Research for FY 2002-2003. The continuation of the research will begin in early 2003. The focus of the continuation will be to demonstrate and evaluate the most promising technologies in cooperation with some State Departments of Transportation. Volunteer states will be solicited early in the project continuation.

by William Hyman, Senior Associate, Booz Allen Hamilton, McLean, VA, and Wayne W. Kober, Wayne W. Kober, Inc., Dillsburg, PA
According to Ron McCready, NCHRP Senior Program Officer, and Project Manager, in the next few months, the NCHRP 25-23 Project Final Report will be issued. The preliminary findings of the project were highlighted during a conference session at the 2002 Transportation Research Board (TRB) Annual Meeting in January.

The objective of the project was to develop a concept and implementation approach for an Environmental Information Management and Decision Support System (EIM&DSS) that addresses all levels of decision making-planning, programming, project development, operations, and maintenance-for all modes of transportation. The outcome of the project is a handbook, which describes the concept for the EIM&DSS and provides guidance to state transportation departments and Metropolitan Planning Organizations (MPOs) on developing and implementing such a system.

The Concept
The EIM&DSS is best understood as a DSS that draws upon an EIM system to provide decision makers with the information and analysis necessary to choose from various alternatives and to track progress on achieving environmental goals. The goals are established within a framework of the International Organization for Standardization (ISO)-the ISO 14001 standard for Environmental Management Systems (EMS) (see Figure 1).
More specifically, this handbook defines an EIS&DSS as:

“...any system that strives to provide decision makers involved in planning, programming, project development, operations, and maintenance for any mode of transportation with the right information and analysis, in the right format, and at the right time to make specific decisions and to continually improve the outcomes of the agency’s activities, operations, products, and services when measured in terms of transportation, environmental, social, cultural, and economic factors.”

The concept for the system was developed using a top-down, customer-driven approach and engaged nearly all the states and a large number of MPOs.

The handbook sets out the concept for the EIM&DSS by providing a variety of views of the system as shown in the main opening screen (see Figure 2).

**Implementation**

The handbook sets out recommended steps for implementing the EIM&DSS concept. This is a concept that must be implemented in phases, each focused on one or more of the building blocks in Figure 3 below.

The concept has the flexibility to be used in one agency or multiple agencies and at the local, state, regional and/or national levels.

The EIM & DSS handbook provides new guidance for transportation agencies and their partners to enable them to collaboratively develop their information and decision-support systems within a common electronic framework. Several state DOTs are working with their sister state agencies, MPOs, and Federal agencies to develop such shared environmental databases and decision support systems. Florida DOT has recently started using its Efficient Transportation Decision Making System that makes it possible for the department, its planning partners and the regulatory/resource agencies to make planning-level environmental review decisions on-line using the Internet. Pennsylvania DOT is using its Cultural Resource GIS Database to perform pre-historic and historic resource inventories, presence/absence determinations, significance determinations and effect determinations during the project development process in collaboration with the Pennsylvania Historical and Museum Commission.

**Environmental Management and Stewardship**

The EIM & DSS has great potential to promote transportation environmental management and stewardship by making it much easier to manage and share information internally and externally during planning, programming, design, construction, maintenance and operations. With environmental information readily at hand, the decision-makers will be able to take important environmental factors into account as problem-solving concepts are created, rather than as an afterthought.
We Need Your Support!
In order to accelerate the deployment of the EIM & DSS, a mechanism is needed to speed up the use of the manual and to capture and share the deployment experiences. Currently, the NCHRP 25-23 Project Panel under the leadership of Jose Aldayuz is developing a continuation request to obtain additional NCHRP funding next year for piloting the system in the states. In order to rank high enough for the AASHTO Standing Committee on Research to recommend the project for continuation funding, the state DOTs have to give the continuation request a high ranking. If you want to see the project continued, please contact your respective research program managers and encourage them to rank the project high.

Another obvious avenue for deploying the system is for your organization to pilot it on your own using the manual. If you choose to go this route, it would be good to call Ron McCready at 202-624-3610 or Jose Aldayuz at 202-624-3610 to let them know your intentions and interest.

Report Release
The release of the NCHRP 25-23 Final Report will be announced through the TRB Internet Newsletter. You can subscribe to the newsletter free of charge through the TRB website. ■

Features

**Common Sense and Section 4(f) - Compatible or Mutually Exclusive?**
by Diane M. Nulton, Associate and Project Manager, McCormick, Taylor & Associates, Inc.

Section 4(f) is frequently cited as the primary hold-up for many transportation projects, from straightforward Categorical Exclusions all the way to the most complex Environmental Impact Statements. In transportation project litigation, Section 4(f) is often raised as an issue and is one of the hardest to defend. Was this the intent of its authors? Can common sense be brought back into the equation?

In order to avoid a minor take from a steep, unused, portion of a publicly-owned public park, a project is forced to shift to the opposite side of the street and take the front yards from 15 private residences. Why?

Despite the fact that a sliver take of a National Register eligible resource is determined through the Section 106 process to have No Effect on that resource, avoidance alternatives must be examined and shown to not be feasible and prudent. What’s the point?

When Section 4(f) of the U.S. Department of Transportation Act of 1966 was first enacted, it was the intent of the act to afford protection to publicly-owned public parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites. The act required an alternatives analysis to show there was no feasible and prudent alternative to the use of these properties and that all possible planning to minimize harm was incorporated.

It is difficult to know exactly what the authors had in mind when they promulgated Section 4(f); however, if one takes a "common sense" approach, one might imagine that they were focused on trying to prevent transportation projects from just barreling through our nation’s parks, recreational areas, refuges, and significant historic sites. It is doubtful that they intended for it to protect against sliver takes of property from dilapidated, barely eligible for the National Register historic properties, and minor takes from the fringes of recreational sites and public parks where the impact would not affect the recreational function/integrity of the sites.

Has the original intent of the law changed, or did it simply evolve over time based on case law and legal interpretation? Case law, particularly the Overton Park case helped to define the standards of "feasible and prudent." The Section 4(f) "feasible and prudent" standard is the most stringent standard we adhere to in the transportation project development process - more stringent than the "reasonableness" standard associated with the National Environmental Policy Act. In order to conclude that a Section 4(f) avoidance alternative is not feasible and prudent, it must be demonstrated that the alternative would result in truly "unique problems" or impacts of an "extraordinary magnitude." This has led to a complex, time-consuming alternatives analysis process for projects involving use of Section 4(f) resources. Because of this, some view Section 4(f) as a "black box" - you just don’t go there! Others automatically add a couple years to the project schedule when a Section 4(f) use is inevitable (even if the project is a Categorical Exclusion).

The time has come to evaluate where Section 4(f) policy has come over the years. Given the current interpretation and application of Section 4(f), it is reasonable to understand why some now question if the policy of Section 4(f) in its current form has abandoned the realm of common sense. Perhaps a few relatively minor changes to the Section 4(f) regulations would get things back on track. These changes to the existing Section 4(f) regulations would expedite and streamline the Section 4(f) Evaluation process, while still maintaining the intent and objectives of its founders. These changes could include things as simple as:

- Adding an exception clause where minor property acquisition from a significant historic site would not be considered a Section 4(f) use if a No Adverse or No Effect determination was made by the agency and received SHPO concurrence.
- Adding an exception clause where minor property acquisition from a public park, recreation area or refuge would not be considered a Section 4(f) use if the officials with jurisdiction agree that the acquisition would not alter the recreational use or refuge purpose of the property.
- Adding an exception clause for encroachments into...
Features

the boundary of an historic resource where all of the work will be done within existing transportation right-of-way.
• Allowing for the "qualitative importance and value" of the Section 4(f) resource to be taken into consideration in determining whether an avoidance alternative is "feasible and prudent." This would essentially allow "unique problems" and impacts of an "extraordinary magnitude" to be interpreted on a sliding scale.
• Allowing for a transportation facility to encroach into the boundary of an historic transportation facility without this encroachment constituting a use, where there is a No Adverse or No Effect determination made by the agency and receiving SHPO concurrence. It could be argued in some cases that the encroachment represents a progression in the transportation history of the property.

The incorporation into the existing regulations, and implementation of exception clauses and minor changes like those proposed above, would reduce the number of Section 4(f) uses encountered, particularly for minor projects like 3R projects (resurfacing, rehabilitation and restoration) and projects requiring Categorical Exclusion Evaluations. This would work towards streamlining the transportation project development process, while still affording protection to our public parks, recreation areas, refuges and significant historic sites. By considering the "qualitative importance and value" of the Section 4(f) resources in the Section 4(f) Evaluation, the protection of the most important, most valuable sites is maintained, while allowing for flexibility and exemption where the encroachments are minor and resources are less important or valuable.

Are common sense and Section 4(f) compatible? If we agree to exclude situations where the effects on Section 4(f) resources are negligible to the big picture, then they certainly appear compatible. All it takes is a little common sense.

Solving Problems with Cumulative Effects Analysis
by Brian Smith, FHWA, Midwestern Resource Center, Olympia Fields, IL

Cumulative Effects Analysis (CEA) is a method that can be used to solve a problem. If a problem can be defined as a past deviation of a cause that produces a visible effect in the present, then CEA is similar to Problem Analysis in that both require you to think about a problem in terms of cause and effect. The difference, however, is that CEA covers more ground by taking into consideration a number of "cumulative" factors. Because this method can result in a more accurate, useful solution to a problem, CEA is especially useful for analyzing environmental dilemmas where a variety of small influences can contribute to one large problem.

As with any attempt at solving a problem, the problem must be adequately defined. This can be done by determining the "affected environment" and establishing the conditions that are affecting it. There are four dimensions of a cumulative effects analysis-identity, location, timing, and magnitude-that relate to the potential for resource/system interactions.

In describing an affected environment, it also helps to ask questions. For instance, if you’re working on a project and trying to solve a problem, you might want to ask "cumulative effects" questions about the project, such as:

• "What’s going on?"—here you identify the status and scope of the problem;
• "Why did this happen?"—trace the cause-and-effect process of the problem;
• "Which changes will be caused by the project?"—and other projects;
• "What will the effects of these changes be on resource functions?";
• "What are the best choices to make?"; and
• "What lies ahead?"—where you can take preventive action.

To illustrate the "structure" of a problem, consider the following diagram, where the x-axis reads, from left to right, the passage of time; and the y-axis reads, from top to bottom, a drop in performance from where it should be to where it is.
With Problem Analysis, you would have only the knowledge of present performance compared to what the performance should be. If performance once met the "should" level but no longer does, then a change has occurred. At the outset of problem solving, we do not know exactly what the change consisted of or when it occurred.

Similarly, the affected environment can be described in terms of changes that have occurred and its present condition, performance, and/or function. The next diagram illustrates the condition of the affected environment.

![Diagram of Affected Environment]

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**Fig. 1:** The structure of a problem (Kepner and Tregoe, 1981. Reprinted with permission from p. 37 of The New Rational Manager. © 1981 Copyright Kepner Tregoe, Inc.)

**Fig. 2:** The condition of the affected environment
If the performance, conditions, or functions of the affected environment have changed over time, then we can identify and describe the change that had a major effect on the condition of the affected environment and when this change occurred. An environmental reference point should be used to describe the relative change within the affected environment. This procedure provides the environmental baseline and past timeframe for the cumulative effects analysis. (The environmental baseline is the predicted condition of the affected area without the proposed project.)

A more subjective diagram can then be used to describe the future performance of the affected environment and recovery/degradation trends within it, as seen here:

The amount of deviation from the projected baseline describes the extent and magnitude of the environmental effects. The predicted deviation may be upward (indicating improvements in the condition), downward (indicating adverse effects), or a flat line (indicating no effects). At this stage, cause-and-effect relationships of reasonably foreseeable changes on the affected environment should be thoroughly examined.

The combined interaction of human activities with many other activities causes aggregate effects that may be different from the effects of the individual project. The aggregate effect of reasonably foreseeable changes (or causes) determines the magnitude and direction of environmental effects. "Cumulative impact" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

Once we have a precise understanding of the setting, we can evaluate the problem and causes to predict the response of the affected environment. It is useful to identify and isolate many potential causes and systematically eliminate them.

The next chart shows an evaluation of cause-and-effect relationships; the solid arrows represent various magnitudes and directions of reasonably foreseeable activities that cause changes to the affected environment, and the dashed arrow represents the predicted shift in the resulting condition of the affected environment(s).
Effects are specific, not general, and they may be incremental. Causes may be incremental as well, but may also have a wide array of effects. Multiple causes affecting a common resource target may combine to result in a significant effect on that particular resource target. Each potential cause should be evaluated with sufficient specificity with regard to its influence on the deviation statement or the condition of the affected environment. A “true” cause (or causes) explains the deviation in all four dimensions—identity, location, timing and magnitude—and explains the exact effect as described in the deviation statement.

Key to the analysis is identifying those causes (or combination of causes) and their influence (or change) on the affected environment. In this step, it’s vital that relevant data be provided to allow for a relevant basis of comparison with the environmental reference point. A thorough understanding of the condition, performance, and/or function of the resource in question are necessary. Use close logical comparisons such as case studies, scenario writing, trend extrapolation, and capacity analysis. It’s equally important that specific characteristics of the affected environment be identified and not overgeneralized. Identification of stress factors, pertinent regulations, or plans may be appropriate as well. Only extract information that is relevant to the probable cause-and-effect relationship. Failure to identify the true cause is a result of either insufficient identification of key distinctions and causes related to your deviation statement for affected environment (or an overly general deviation statement) or allowing assumptions to distort your judgment during the testing step.

In many cases, mitigation is capable of offsetting past synergistic effects and restoring the environment to its baseline or pre-baseline condition. However, over the long-term as those effects outside the action agency’s jurisdiction or control persist and the mitigated condition cannot be sustained in perpetuity. This often gives the perception of poor mitigation effort. An illustration can be viewed at the end of this article (Figure 5).

The two criteria in assessing the need for detailed evaluation are, one, whether the analysts or stakeholders believe there is uncertainty about the underlying assumptions used to estimate the indirect and cumulative effects; and, two, whether changes in the underlying assumptions can be expected to result in significant changes in the findings. If uncertainty in the underlying assumptions is recognized, but variation in the assumptions is unlikely to significantly alter the findings, then the uncertainty and the conclusions regarding sensitivity should be carefully documented, at which time the analyst may proceed to the final steps in the analysis. If analysts or stakeholders see a level of uncertainty in the assumptions employed and that uncertainty is likely to significantly alter the findings, then a more detailed evaluation is warranted.

In the final analysis stage, there are four things that must be identified to help predict the future condition of the affected environment and address cumulative effects:
1. Vulnerable areas and thresholds
2. Specific potential problems
3. Likely causes
4. Contingent actions

It is possible to identify potential problems and likely causes for which there are no preventive actions. When that happens, we should jump to the preventive action step and go on to devise contingent actions to minimize the effects of the potential problem. It is also possible to identify serious potential problems for which there are no feasible preventive or contingent actions. When that happens, there are only two paths to take: first, accept the identified risk and hope for the best; second, move back to identify a more manageable course of action.

The National Environmental Policy Act calls for informed decision-making and predictability, which makes the use of Cumulative Effects Analysis all the more warranted. In most cases, reasonable speculation is inherent to CEA. The above illustrations demonstrate that CEA can establish the magnitude and significance of changes within an affected environment.


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Figure 5: Structure of Cumulative Effects Analysis
Editor's Notes

by Mark Kross
Missouri Department of Transportation

Thanks to Diane Nulton and Brian Smith who contributed feature articles for this newsletter. I also appreciate information others supplied. I encourage all subcommittee chairs, any other members, friends of the committee and others to submit announcements, subcommittee reports, research news, requests for information and features. Sometimes I have gotten a lot of feedback. This time, the feedback was not substantial.

I’ll be asking for materials in February for submittal by mid April 2003 for the May 2003 issue. If you already have material, send it to me now. I can use the materials because the in-basket is now empty.

Thanks to Jennifer Riddle, who has done such an excellent job designing and formatting the electronic newsletter, and J.K. Robinson and Patti Mulligan of Michael Baker Jr., Inc. for their help in posting the electronic newsletter.

I hope to see you all at the 2003 annual TRB meeting in January.

Newsletter Guidelines

Major Headings:
Chairman’s Message Requests for information
Announcements Features
Subcommittee Reports Editor’s Notes
Research News

Submittals should be formatted to 8 1/2 ” x 11” size, typewritten in caps and lower-case, single spaced, flush left margin. Subject and author should be provided as part of the text. My preferred word processing software is Microsoft Word (although I should be able to translate/convert most other applications). Articles may be submitted as hard copy with a 3.5” disk, or by fax or e-mail to the Newsletter Editor:

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Persons can become "friends of the A1F02 committee" by contacting Carol Cutshall. Carol can be reached at 608-266-9626. Her e-mail is carol.cutshall@dot.state.wi.us. Kimberly Fisher is the committee’s TRB staff representative. Kim’s phone is 202-334-2968, and her e-mail address is kfisher@nas.edu.

Electronic Newsletter

This November 2002 newsletter is NOT being printed and mailed. It is being e-mailed to members, friends of the committee and others who have provided us an e-mail address. Newsletters are available only by e-mail and on the A1F02 web site. Please submit your e-mail address to Mark Kross at krossm@mail.modot.state.mo.us and Jennifer Riddle at jriddle@mbakercorp.com to get on the e-mail list for the future newsletters. The newsletter also is available at the A1F02 committee’s website at http://www.ite.ncsu.edu/A1F02/default.htm hosted by the Center for Transportation and the Environment (CTE).

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