Chairman's Message

by Carol D. Cutshall, Director, Bureau of Environment
Wisconsin Department of Transportation

Our Committee is making news on the environmental scene. AASHTO recently gave A1F02 recognition for helping develop and refine the concept of Environmental Stewardship. AASHTO now has 23 states signed up for a Stewardship Demonstration Program that would include a "how-to" video-conference and technical assistance. Much of the printed information that AASHTO uses is based on our work.

In November, the A1F02 Natural Resources Subcommittee and the Center for Transportation and the Environment (CTE) at North Carolina State University developed and sent out an e-mail survey on Environmental Stewardship. Thirty-one state, university and federal agency staffers and others replied. Katie McDermott of CTE and Andy Fekete of New Jersey DOT, who is chair of the Subcommittee, took the responses and put them into a survey summary.

The survey provided a basis for discussion at the January TRB Stewardship Workshop. In one afternoon, the workshop participants-many of you were there-reshaped the survey results into a report on Stewardship. Everyone agreed that the report was a work in progress, but we left the workshop with a sense of satisfaction. We had put our thoughts on paper and could begin broadly sharing the concept. Look for the Workshop Summary at http://itre.ncsu.edu/A1F02/default.htm by clicking on "Publications." Thanks to all participants and especially to Andy Fekete and Gary McVoy, to Members of the Natural Resources Subcommittee and to James Martin, Katie McDermott and Janet Meyers of CTE.

On another topic, I want to share what is happening with the 2002 Environmental Research Needs Conference. Our purpose is to identify high priority environmental research problem statements and compile them in a circular for use by federal agencies, the states and private groups that fund research. John Fisher, CTE, and I are the co-chairs. The Conference is scheduled March 21-23, 2002 in Washington, DC. It will be by invitation only. State Departments of Transportation will be asked to nominate two people to attend. We also have a list of those who participated in the past. This year the conference will be expanded to include environmental issues related to Railroads, Ports and Waterways, and Airports.

So that the conference participants can discuss the broadest possible range of problem statements, we are asking you to submit draft research needs statements by September 2001. More details on this request are included in a separate announcement in this newsletter.

Finally, I want to welcome our new Subcommittee on Community Impact Assessment, which is also a subcommittee of two other Transportation Research Board Committees: A1C06, Social and Economic Factors of Transportation, and A1D04, Public Involvement in Transportation. This group has been very busy planning for two regional seminars this fall. Brenda Kragh of FHWA is the Chair. Contact her at Brenda.Kragh@igate.fhwa.dot.gov.

I look forward to seeing you in St. Louis for our summer workshop July 24 - 27.
Transportation Environmental Research Needs Conference
Call for Research Needs Statements

Every five years, AASHTO, EPA, FHWA, and TRB conduct a Transportation Environmental Research Needs Conference. Environmental research experts are invited to meet, identify top research needs, and write up detailed Research Needs Statements. These are then published in a report that becomes a primary source for funded research proposals. Millions of dollars of important environmental research has resulted from these conferences. The next is being held in March 2002.

Prior to the conference draft research needs statements are invited from the transportation community. This is an opportunity for you to let us know about pressing research needs.

Please observe the following format:

- Title
- Problem Statement
  - A statement of the problem or issue that needs to be addressed, and why it is important.
- Proposed Research
  - Work that needs to be done to address the problem.
- Origin of the Statement
  - Name and contact information for the author of the statement.

Send your Research Needs Statements to:
Mail: Jon Williams/Mary Kissi
Transportation Research Board
2101 Constitution Ave NW
Washington, DC 20418
Fax: Jon Williams/Mary Kissi
202-334-2003
E-mail: jwilliams@nas.edu
Due Date: September 2001

Call for Papers
Environmental Stewardship A1F02

Transportation Research Board (TRB) Committee A1F02 Environmental Analysis in Transportation is seeking papers on the general topic of Environmental Stewardship for presentation at the 81st TRB Annual Meeting in Washington, DC, January 13-17, 2002. Environmental Stewardship is rapidly becoming the mantra of both the transportation and environmental communities. It is taking the form of context-sensitive design, sustainability and numerous other initiatives.

TRB Committee A1F02 has long been engaged in furthering the question of how best to serve as stewards of the environment. We are seeking papers on the topic, especially as they relate to how states are actually promoting environmental stewardship in their transportation project development and other activities and the lessons learned.
Papers are due to TRB by August 1, 2001. Papers are now being accepted for consideration for presentation at the TRB Annual Meeting and/or for TRB publication. Log on to the paper submission site at www.miracd.com/trb2002 and follow the instructions. Instructions for paper authors can be found at www4.trb.org/trb/annual.nsf/web/author_guides. Papers are sent directly to TRB (as per the TRB instructions) and should be marked attention: Jon Williams (A1F02).

ICOET Conference
International Conference on Ecology & Transportation

The International Conference on Ecology and Transportation (ICOET) will be held in Keystone, Colorado on September 24-28, 2001. ICOET is a combined conference sponsored by the International Conference on Wildlife Ecology and Transportation (ICOWET) and the national conference on Transportation, Wetlands and the Natural Environment (a.k.a. Connections). The conference will provide a comprehensive source of ecological information for the transportation community. The proceedings will be available in Web and print formats and will be provided to conference participants.

This year the Subcommittee on Natural Resources (A1F02 Parent Committee) will coordinate with ICOET organizers to translate ecological issues identified at the conference into research problem statements for future consideration by TRB. This marks the beginning of formal collaboration between the traditional conference sponsors and TRB, which will strengthen both groups' efforts in the future.

For additional information on ICOET visit the conference web site at www.itre.ncsu.edu/cte/icoet2001.html or call Katie McDermott, Center for Transportation and the Environment, at 919-515-8034.

New Tribal Transportation Issues Committee Approved

The Transportation Research Board has taken action to approve the creation of a new committee called the Tribal Transportation Issues Committee. This culminates many years of dedicated effort from a number of individuals within TRB to include tribal issues in their various committee and subcommittee discussions and presentations. Montie Wade with the Texas Transportation Institute and Ken Cook, retired TRB staff, deserve much of the credit for their continued support for this effort.

Mr. Tex Hall, Chairman of the Three Affiliated Tribes, graciously invited attendees of the October meeting in Albuquerque to host the first meeting if the committee proposal was approved. Ron Hall mentions that this is his home and he is excited to bring this first committee event to that wonderful and out-of-the-way destination. Please mark your calendars for August 14, 15, and 16 to travel to New Town, North Dakota. The first meeting will be at the Four Bears Casino and Lodge. Call (800) 294-5454 for reservations. A block of rooms has been set aside under the Transportation Research Board. Rates are $65 per night on the weekend, $55 per night weekday, and $40 per night government rate weekday. This first meeting will be focused on developing a strategic plan for the committee and a research agenda. The Shell Creek Celebration (pow wow) is held the weekend before the committee meeting, August 10-12, and is right across the highway from the Lodge. This site is also on the shore of Lake Sakakawea, a reservoir on the Missouri River and part of the Lewis and Clark Trail.

Also, please note that the 4th Annual National Tribal Road Conference will be held in Albuquerque, New Mexico October 30, 31, and November 1, 2001. Additional information and brochures will be mailed soon. Contact Ronald Hall, Director, Tribal Technical Assistance Program, Rockwell Hall, Room 321, Colorado State University, Fort Collins, CO 80524-1276. Telephone Toll Free: 800-262-7623; Direct: 970-491-8653; Cell: 970-217-9076; www.colostate.edu/Orgs/TTAP/; rhall@lamar.colostate.edu

Community Impact Assessment Joint Subcommittee

The new A1F02-affiliated TRB Community Impact Assessment (CIA) Joint Subcommittee (JS) is planning two regional workshops (NJ and NC) by the end of this calendar year, a TRB Annual Meeting CIA Workshop in January 2002, and the Third National CIA Workshop will be held in Wisconsin in late summer/early fall of 2002. Except for the TRB January 2002 workshop, state DOT JS members are taking the lead in planning these events. The TRB event will be a JS effort with its chair, Brenda Kragh, coordinating activities.

In addition to these workshops the JS has been going through organizational startup. The JS Core Group members now number 27, including 15 State DOT members, 5 from FHWA, 1 Federal Transit Authority member, 1 transit agency, 4 contractors, and 1 university. The JS is hoping to fill the final three seats with state DOT representatives from the Mid-West or western states. We have begun an Associate Member list of persons interested in CIA activities. This list will be used for invitations to workshops and publication mailings. In addition to A1F02, the JS is associated with A1C06 (Social and Economic Factors in Transportation) and A1D04 (Public Involvement in Transportation) with strong ties to the new TRB Task Force on Environmental Justice, chaired by Lori Kennedy and Leigh Lane. The chairs of our three parent committees, Carol Cutshall, Bill Black, and Margaret Campbell Jackson, as well as Jon Williams, the JS TRB representative, have been very helpful and patient during this startup period.

The JS holds monthly conference calls to exchange information and provide updates on ongoing activities. We are pursuing an electronic newsletter, which will contain notes from our conference calls, tidbits of relevant information or sources...
of such information, and a brief volunteered (possibly project-related) article. If you would like to be on this e-mail mailing list, please contact Brenda Kragh, the chair of the JS, at Brenda.Kragh@fhwa.dot.gov. She will forward your e-mail name to the appropriate person. We are working with Florida DOT, FHWA, and the Center for Urban Transportation Research by reviewing and making suggestions on a prototype National CIA website that should be online by June 2001. The JS is brainstorming research ideas for consideration through NCHRP. JS members are also helping assemble a listing of State DOT CIA contacts and FHWA Division-Office CIA contacts for networking and outreach.

Brenda Kragh notes the new kid on the block is full of energy. She has high praise for the Core Group members, their enthusiasm, and their dedication to elevating community needs and issues (the Human Environment) on the transportation agenda. Any help the JS can get from its parent committees or others in this regard will be greatly appreciated. As indicated by its practitioner membership, the Joint Subcommittee’s focus is on practical applications and tools.

TRB Summer Workshops

St. Louis A1F02 Summer Workshop
July 24 - 27, 2001

The St. Louis summer workshop is shaping up. Registration packets were mailed May 25 to about 540 persons and organizations. The registration materials also were e-mailed to prospective attendees. The theme of the conference is “SHOW ME Environmental Sensitivity in Transportation”. Sessions cover the gamut of topics transportation environmental managers handle. The field tour on July 26 is of several key environmental projects in St. Louis. Activities begin with the A1F02 Committee meeting at 2:00 PM on Tuesday, July 24. The Missouri Department of Transportation (MoDOT) is hosting the meeting, including an evening reception on Tuesday. General sessions begin Wednesday morning with concurrent sessions that afternoon. Large projects are discussed Thursday morning prior to the field tour that afternoon. The conference closes Friday at noon. Registration is $185 before July 3 and $210 after that. Guests are encouraged to attend for $75. Hotel reservations must be made at the Sheraton West Port Lakeside Chalet before July 3. Rates are $99 for a single or double, plus tax. Call the hotel at 314-878-1500. For conference information, contact Donna Roewe at 573-751-2876 or Mark Kross at 573-751-4606.

2002 Summer Workshop

Bill Hauser, Administrator of the Bureau of Environment at New Hampshire Department of Transportation, is hosting the 2002 summer workshop in New Hampshire. Planning is beginning for that event.

2001 A2A05 Committee Summer Meeting

Gary Bush, Chief Landscape Architect of the California Department of Transportation is hosting the summer workshop of the TRB Landscape and Environmental Design Committee July 29 - August 1, 2001 in San Diego. That is followed by a rest area meeting after the A2A05 meeting lasting until August 2 or 3. For info about the A2A05 meeting, contact Marsha Mason at marsha_mason@dot.ca.gov.

Subcommittee Report

News from Guided Intercity Passenger Transportation Subcommittee and Task Force on Environmental Impacts of Aviation

by Marcia Bowen, Normandean Associates

The Environmental Issues Related to Guided Intercity Passenger Transportation Subcommittee (A2M05(1)) is planning a session titled "Intercity Travel: Modal Choices and Environmental Tradeoffs" at the January 2002 TRB annual meeting. A number of subcommittee members have worked on major high speed rail projects (Florida, California and Texas) that ultimately were never built. The lessons learned from these projects in terms of estimated and actual travel projections, congestion, trip time, safety, etc. offer an opportunity to assess the accuracy of the predictions for the no-build alternative. The subcommittee is seeking members representing major airport and highway projects to participate in a panel discussion on the definition and analysis of the no build alternative. Contact Marilyn Duffey at 415-291-0230 if you are interested in participating or can recommend a good panelist.

Other issues for A2M05(1) included a identification of a research need for a standard method for conducting air quality analysis of high speed rail. A task force will evaluate whether to submit a research needs statement for the next round of funding (March 2002).

David Valenstein of the Federal Railroad Administration (FRA) made a presentation on the Draft Programmatic EIS for the Maglev Deployment Program; a formal paper will be presented at the TRB annual meeting. No formal mid-year meeting will be held for the subcommittee.

The Task Force on Environmental Impacts of Aviation is continuing to seek permanent committee status. The Aviation Committee is eager to have this very active task force join the ranks of permanent committees, but the decision has been delayed because of opposition by other environmental committees. The fundamental issue is whether environmental issues should be organized by topic rather than mode. All were hopeful that outstanding issues could be resolved by the July 2001 group meeting.

The Aviation Task Force’s Environmental Handbook, a work in progress, is available at the Task Force website. The group also plans to develop a brief paper to help elected/appointed officials understand environmental and related planning issues that U.S. airports face in the course of normal operations. The Task Force plans to have their mid-year meeting in Washington in conjunction with one or more of the other TRB environmental committees.
A Practical Approach to Addressing Environmental Justice During The NEPA Process: Completing and Documenting the EJ Evaluation

by Joseph S. Shalkowski, Michael Baker Jr., Inc.

Concluding my series on Environmental Justice (EJ), this article addresses what many believe is the "heart" of the EJ issue: determining whether a project and its alternatives would result in disproportionate high and adverse effects on minority and low-income populations. In focus are the three final components of the EJ Evaluation: 1) the impact analysis to determine if the project would result in disproportionate adverse effects; 2) the consideration of potential offsetting benefits and a commitment to "practicable" mitigation/enhancement measures; and 3) the documentation of the EJ Evaluation for inclusion in the NEPA document.

Looking back, in the November 1999 newsletter, I introduced the policy of EJ in terms of understanding how it could affect the planning and development of transportation projects. In the May 2000 newsletter I introduced the following three-part approach for addressing EJ during the NEPA process:

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<td>NO</td>
<td>Document findings &amp; continue impact analysis according to FHWA TA 6640.8A</td>
</tr>
<tr>
<td></td>
<td>Part III: Implementation, Evaluation, and Documentation</td>
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This approach is presently being utilized on several Pennsylvania Turnpike Commission (PTC) projects that require the preparation of Environmental Impact Statements (EISs). In the May 2000 article I also detailed Part I of the EJ approach which involves determining at the onset of the evaluation if the project and its alternatives have the potential to disproportionately affect minority and/or low-income populations. Once that potential is confirmed, the segue into Part II of the EJ approach should be seamless and lead to the development and implementation of a public involvement and outreach program that essentially guides the remaining components of the EJ Evaluation. The November 2000 article covered the PTC's approach to proactively engage and involve potentially affected minority and low-income populations in the project development and decision-making process. Now to continue, the following presents Part III of the approach which addresses the completion of the three final components of the EJ Evaluation.

**Part III - Implementation, Evaluation, Documentation**

There are three primary objectives associated with this part of the EJ Evaluation Approach. First, it is necessary to adequately address the interests, issues, concerns, observations and perceptions of the affected public including public officials, community leaders, businesses, and residents. This is accomplished by working with the public through a proactive outreach and involvement program (refer to my November 2000 article). Second, in accordance with the standards of Title 23 U.S.C. Section 109(h) and FHWA’s 1987 Technical Advisory, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (TA6640.8A), it is important to clearly identify and disclose impacts that the project may have on ALL affected stakeholders, including anticipated changes in the dynamics and cohesive qualities that hold communities and neighborhoods together. Sometimes these qualities are extremely fragile and can easily be upset in minority and low-income areas. Third, it is essential that the sponsoring transportation agency fulfill all impact avoidance, mitigation, and enhancement commitments which are made to the public and ultimately included in the NEPA document. Excellent quick reference guides to use during this part of the approach include the following FHWA publications: Community Impact Assessment, September, 1996, and Community Impact Mitigation-Case Studies, May 1998.

**Impact Analysis**

At the moment a project is publicly announced and communities learn that they may be directly impacted, people's lives are often disrupted and may forever be affected and changed. As transportation professionals I hope we are sensitive to this reality because it brings with it a great deal of responsibility. Most often the collective benefits of the project will outweigh the adverse costs, but not always. For instance, what is the effect of routing a transportation facility through a community that because of social, economic, or even design factors may have on each and every population group, community, or neighborhood must be determined and disclosed to the public. FHWA’s 1987 Technical Advisory even goes as far as requiring the documentation of any social group that is disproportionately impacted. Moreover, the community impact analysis that should already be occurring on every transportation related NEPA project can in fact provide the necessary information and data to complete the EJ analysis.

As previously addressed in my November 1999 article, there is nothing new or unique about the EJ impact analysis. Plain and simple, the positive and adverse impacts that a project may have on each and every population group, community, or neighborhood must be determined and disclosed to the public.
The EJ impact analysis itself generally focuses the impacts that a project and its alternatives may have on identified EJ communities, neighborhoods, and locally concentrated populations. These areas would have been identified during Part I of the EJ approach. The structure of the EJ impact analysis typically centers first on addressing the impacts to individual EJ areas. Then, the impacts to these individual areas are to be collectively evaluated to determine if the project or any of its alternatives as a whole would result in disproportionately high and adverse effects. When conducting the analysis, it is important to address and take into account both the adverse and off-setting beneficial impacts of the project. FHWA Order 6640.23 provides a listing of the possible EJ impacts that should be investigated and addressed as part of the analysis. Also, when conducting the analysis, it is important to reach a mutual understanding with the public over what constitutes a beneficial or an adverse impact. As mentioned in my November 2000 article, what is typically considered to be an adverse impact may in actuality be perceived to be a very positive effect based upon the unique dynamics of a community or population group.

FHWA Order 6640.23 defines and provides guidance for determining if a project or its alternatives would result in a disproportionately high and adverse effect. In the event it is determined that the preferred alternative would have a disproportionately high and adverse effect on minority and/or low-income populations, while any of the other alternatives under consideration would not, great care should be taken to demonstrate in the NEPA document how the impacts of the alternative could not be avoided or minimized, how the impacted communities were involved in the decision process, what the actual impacts are, and what "practicable" mitigation commitments will be made. Furthermore, it must be demonstrated that the other alternatives which would have a less adverse effect on minority and/or low-income populations are not "practicable" because they would either not satisfy the project needs, have other more severe adverse impacts, or involve increased costs of extraordinary magnitude. Of course, close coordination with the project sponsor and/or lead NEPA agency would be mandatory during such a situation.

**EJ Mitigation**

Consistent with the provisions of NEPA, effort should be made to avoid, minimize, and mitigate all identified adverse community impacts, regardless of the community's demographic or economic composition. According to FHWA Order 6640.23, the EJ disproportionate effects determination should take into account committed mitigation and enhancement measures and potential offsetting benefits to the affected minority and low-income populations. When developing mitigation or community enhancement measures that would reduce or offset adverse community impacts, it is important to solicit and facilitate a dialog with affected minority and low-income community leaders and citizen groups. Their input to this part of the process is essential to building a local consensus around the entire project. Finally, depending upon the degree of EJ impact, it may be appropriate on some projects to specifically identify EJ mitigation commitments in the Record Of Decision (ROD).

**Documentation of the EJ Evaluation**

With regard to organizing the content of any EJ documentation, the sequence of the three part PTC Environmental Justice Evaluation Approach would provide a good starting point. Based on that approach the following serves as an example outline for addressing EJ in the Environmental Consequences Chapter of the NEPA document:

I. Introduction

II. Disproportionate Effects Test

III. Public Involvement and Outreach Program

IV. EJ Impact Analysis (Determination of Disproportionately High and Adverse Human Health and Environmental Effects on Minority and Low-Income Populations)

V. Mitigation

If a decision is made to include a separate EJ section in the NEPA document, it is suggested that the section be concise by referencing, to the extent possible, other sections of the document where relevant information can be found. There is no need to repeat information.

If you have any questions about EJ during the NEPA process, please contact Joe Shalkowski at 412-269-4628. Special thanks are extended to the Pennsylvania Turnpike Commission and especially David P. Willis, PTC Environmental Manager, for this series of articles.
US 93 Memorandum of Agreement
by Angela Johnson, FHWA

Since the early 1980's the Montana Department of Transportation (MDT) has been working toward a design to reconstruct US 93 between Ev ar o and Polson. The environmental process began in earnest in the 1990s between MDT, the Confederated Salish and Kootenai Tribes (CSKT), and the Federal Highway Administration (FHWA). An environmental impact statement was issued in 1996 with two alternatives being left for consideration. These were an undivided four-lane configuration, which was the state's preference, and a "super two-lane" option that CSKT felt was appropriate. MDT chose to move forward with a plan to build a traditional four-lane undivided highway across the reservation but did not receive concurrence from the Tribes.

To help reach a consensus, MDT hired a consulting engineering firm, Skillings-Connolly, Inc., to help develop a solution that CSKT, MDT, and FHWA could agree upon. Three other consultants were hired to assist in the process. Jones & Jones Architects and Landscape Architects were hired to develop concepts that respected the integrity of the area and find ways the land could influence the road; the Midwest Research Institute was hired to analyze traffic demands and safety considerations in order to meet the goals of both the Tribes and State; and Herrera Environmental, Inc. was hired to provide expertise in the development of the updated environmental document.

Consensus was finally reached on December 20, 2000 when the three parties signed a Memorandum of Agreement. The agreement lays out the concepts for roadway improvement including lane configurations, design features, mitigation, and how people, wildlife, and visual aesthetics will be protected. There will also be ongoing consultation and guidance by the Project Oversight Group, which will work to establish and maintain policy for the environmental and design phases of the project, and the Technical Design Committee, which will oversee the development of the preferred conceptual roadway improvements into technical plans for construction.

A Supplemental Environmental Impact Statement will be prepared to examine alternative roadway alignments and to evaluate new environmental concerns for 11 miles of roadway on which there has been no decision made. The 1996 EIS will also be re-evaluated to determine whether there are any new circumstances, any changes, or information that would result in significant environmental impacts that were not evaluated in the Final EIS.

The three parties felt it was important to protect the area while developing and designing a roadway that is safe for the traveling public. A design theme was developed which contains contoured earth, quarried stone, rough sawn timber, and small-scale design elements of beadwork patterns. These materials will be used on boundary signs, community entry signs, place name signs, and when possible on new construction projects. Visitor centers and overlooks will be located throughout the project for travelers to obtain information about the reservation. In areas where horizontal realignment may be possible, the road may be realigned so there are better views of the landscape. Vertically, the road will be designed to blend in with the existing environment, while meeting current AASHTO standards. All vegetation planted will be native to the area. Finally, 42 fish and wildlife crossing were designed and placed throughout the project to allow the safe passage of wildlife habitat areas. These crossing include culverts, overcrossings, and bridges. Fencing and jump-outs will also be used along with these crossings to control the movement of wildlife and allow them to return to habitat areas if they become trapped.

The MDT, CSKT, and FHWA, with the help of consultants, have created a context sensitive design that meets design and environmental issues and is aesthetically pleasing. The redesigned US 93 will be model for others states due to the sensitive design issues and the unique partnerships that were developed.

For more information about the US 93 project, please contact Dale Paulson at 406-449-5303 ext. 239 or visit www.skillings.com/Web-Page/0000MOA.html.
The NHDOT & ISO 14001: Taking the Lead on Protecting & Preserving New Hampshire’s Environment

by Fred Murphy, NHDOT

Past practices in our agency have not always had environmental sensitivity at the top of the list of concerns. Sometimes best practices gave way to expediency or simply carelessness. In many cases best practices were never even determined. That's now changing for the better.

The New Hampshire Department of Transportation (NHDOT) is embarking on a new initiative called an Environmental Management System (EMS). With certification as its goal, the NHDOT’s EMS will be developed pursuant to the guidelines found in ISO 14001. We are among the first state transportation agencies in the country to join in a growing national and international effort to better document and improve upon the actions we take that may impact the environment.

The NHDOT is one of fourteen organizations selected from a pool of fifty applicants to participate in the United States Environmental Protection Agency (EPA) Environmental Management System for Initiative for Local Governments. EPA selected Global Environment & Technology Foundation (GETF) to lead this effort. Working under the technical assistance of GETF, this two-year program is being developed in house.

The goal of the EMS project is to intensively study a unit of the NHDOT that is involved daily in tasks which have a direct impact on the environment. The lessons learned can be employed throughout the entire organization and an EMS can be created for all operational units of the NHDOT.

The Bureau of Traffic was chosen for that study. The Bureau of Traffic has 61 employees. During the summer months when temporary hires are brought aboard, the number of employees increases to approximately 100. The Bureau of Traffic is made up of the Traffic Signal Operation Section, the Project Development and Engineering Section, the Pavement Marking Section and the Signing Section. The Bureau of Traffic is a microcosm of the whole NHDOT as its operations involve materials handling, employee safety concerns, energy use, vehicle and equipment maintenance, project development, and coordination with contractors and community officials.

Through the formation of two teams, the EMS initiative began in April 2000. The Implementation Team, made up of seven members of the four operational sections of the Bureau of Traffic, investigated the activities at the Bureau. Thirty-two activities, from installing traffic control signals to pavement marking, were studied. Twenty-one of the 104 environmental aspects investigated were determined significant and management plans are being established that will introduce environmental sensitivity to these specific operations.

For more information, contact Fred Murphy, Special Programs Manager, New Hampshire DOT, John O. Morton Building, P.O. Box 483, 1 Hazen Drive, Concord, NH 03302-0483; telephone 603-271-3226; fmurphy@dot.state.nh.us.
Biological Control of Purple Loosestrife

by Douglas Cygan, Senior Environmental Manager, NHDOT

With increased sensitivity towards the management of noxious weed species, the New Hampshire Department of Transportation’s (NHDOT) Bureau of Environment (BOE) in conjunction with the NH Department of Agriculture, Market and Foods Division (MFD) has created a purple loosestrife, Lythrum salicaria, biological control program. Purple loosestrife was selected because it is a common problem not only in New Hampshire, but also throughout North America. This program utilizes two host specific plant-feeding insects to manage and control loosestrife.

Problem: During the preliminary design stage of any project involving wetland impacts, mitigation in the form of wetland enhancement, restoration or creation is evaluated. These options typically involve alterations to the landscape that create large pockets of disturbed soils. In many cases, following the construction of these sites, loosestrife will become established even though preventive measures have been followed. This is primarily attributed to loosestrife’s ability to become established by seed and cuttings. A single mature and vigorous plant can produce two and a half million viable seeds. In addition, stem and root cuttings can develop roots if exposed to moist soil and sunlight. Due to loosestrife’s vigorous and rapid growth rate, and its ability to become established in many types of wetland habitats, it tends to out-compete native vegetation, thus creating monotypic stands of loosestrife. It is this elimination of plant species diversity and loss of food and nesting habitat that warrants this plant’s classification as a noxious weed species by the U.S. Army Corps of Engineers (COE) and others. As a result, the COE and the New Hampshire Wetlands Bureau both include a condition in their wetland permits requiring control of loosestrife within mitigation areas.

Solution: In 1994, the NHDOT’s BOE recognized the need to control loosestrife. Previously tested control methods were reviewed to determine which ones would be feasible and provide the best results. Following a literature review of available information, four types of control methods were identified: mechanical, cultural, chemical, and biological. Since resources were limited, mechanical control involving hand pulling was initiated. However, it soon became apparent that this was not an effective or efficient method. Cultural control in the form of tree and shrub planting is being employed, but unfortunately this takes time. Chemical control was considered; however, because many of the selected sites are located adjacent to residentially developed areas, the NHDOT felt that area residents would consider herbicide application as a health concern.

Following a three-year attempt at mechanical control, it was decided to develop a four-year pilot program cooperatively with the NH Department of Agriculture, to study the effects of biological control agents and to develop self-sustaining populations of beetles for the management of purple loosestrife.

During the mid-1980’s, the U.S. Department of Agriculture (USDA) began evaluating 120 known European insects that feed on loosestrife to establish a biological control program. Of these the USDA selected four, which feed exclusively on Lythrum salicaria. They include a root-feeding weevil, Hylobius transversovittatus, two leaf-eating beetles, Galeruella calamiensis and G. pusilla, and a small flower-feeding weevil, Nanophyes marmoratus. Current nationwide evaluations of loosestrife control using herbivorous insects show an approximately 90 percent reduction over a ten-year period; however, the ratio of beetles per acre has never been defined. It is anticipated that as loosestrife declines, indigenous vegetation will fill the void and restore diversity. It is not yet known if loosestrife will be completely eliminated from some areas, but a diverse plant community and the continued presence of biological control agents should help keep any remaining individual loosestrife plants in check.

The two insects selected for New Hampshire’s program are the two leaf-eating beetles Galeruella calamiensis and G. pusilla. To monitor the effects, transects and data plots were established and a vegetative analysis was conducted prior to beetle releases. Post-release monitoring was conducted in late summer using 1-meter square data plots. The monitoring included beetle and egg deposition counts, and a quantitative analysis of both percent leaf and plant damage to the loosestrife. The monitoring results were used to determine if the number of beetles released met the expectations of control or whether additional beetles needed to be released.

Since the program was initiated in 1997, approximately 83,000 adult Galeruella calamiensis and G. pusilla beetles have been released at thirteen sites located throughout New Hampshire.

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<tr>
<td>Total</td>
<td>83,000</td>
</tr>
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Benefits: One wetland mitigation site in particular, known as TSA-1, has been greatly affected by this program. The site is located in the City of Nashua, New Hampshire, and includes just less than nine acres of wetland enhancement, restoration and creation, combined. It was constructed in 1993 as mitigation for widening and reconstruction of the F.E. Everett Turnpike. Almost immediately following the completion of con-
Galerucella spp.

struction, loosestrife began to establish itself throughout the site. By the time the biological control program began, loosestrife had become the dominant species and was approximately six to seven feet high. During the period from 1997 through 1999, approximately 16,500 beetles were released at this site. By the early summer of 2000, all of the loosestrife within and adjacent to the site were either dead or extremely stressed and dying. This was a result of the feeding damage to the leaf tissue, which was estimated to be in excess of eighty percent of the overall leaf area. The leaf damage appeared to occur at different stages of plant development, with the most damage found at the lower portions of the stem. This is most likely attributed to the life cycle of the beetles. In addition, none of the remaining live plants appeared to develop any flowers, whereas, loosestrife at other nearby locations were in full flower. Although the loosestrife is almost completely eradicated from the site, beetles were still found amongst the remaining loosestrife plants. This results in a ratio of just fewer than 2000 beetles per acre at a cost of approximately $200.00 plus approximately $500.00 for labor (16+/ man-hours). This compares to an estimate of approximately 700+/ man-hours over the same four-year period to manually remove the loosestrife including their roots.

Monitoring of this site, as well as others, will continue and additional beetle releases will be conducted as required in order to obtain similar results. Other release sites are showing noteworthy beetle predation and similar control is anticipated at these sites as the beetle population reaches an optimum level. In all, it appears that the use of biological control agents for the control of purple loosestrife has met the original goals and objectives of this pilot program. Although funding for this pilot study ended on December 31, 2000, a new grant proposal is being developed to continue this effort at several new locations throughout New Hampshire.

For more information contact Douglas Cygan, Senior Environmental Manager, New Hampshire department of Transportation, Bureau of Environment, John O. Morton Building, P.O. Box 483, 1 Hazen Drive, Concord, NH 03302-0483; 603-271-6781; dcygan@dot.state.nh.us.

Down Home Environmental Streamlining

by Mary Ellen O’Brien, President & NEPA Consultant, Transportation Environmental Management

Remember when TEA 21’s mandate to streamline the environmental decision-making process seemed like a breath of fresh air? Back then we smiled, kicked back, and counted on others like FHWA to simply come up with a "new way of doing business that would bring together timely delivery of transportation projects and environmental protection/enhancement". I’m now convinced we have spent too much precious time in that mindset and that real streamlining needs to happen outside the national arena. Not that there hasn’t been a flurry of activity at the federal level that includes an inter-agency MOU to expedite project review, a streamlining action plan, more training, pilot projects, and proposed revisions to the NEPA and statewide planning regulations. While these are good initiatives, translating them into specific and useable guidance will take a long time. Meanwhile, several states are already on the go with programmatic agreements, funding review agency positions, implementing better agency coordination and conflict resolution procedures, sensitive design initiatives, using the merged NEPA/404 process, simplifying environmental documents and more. It’s important to continue sharing the results of these efforts as they unfold.

This article is from my perspective as a long time "everyday NEPA practitioner" and is intended to highlight some of the areas where I think we can and should streamline the environmental process at the "down home" level.

Environmental Action Categories

DOTs have a wealth of knowledge and experience about what kinds of projects have what kinds of impacts. We should take full advantage of this expertise by doing some or all of the following:

Implement a project/environmental action list that has as many CE projects as possible. Push the envelope; you have the data and expertise to demonstrate that certain types of projects simply don't have substantial impacts. Then develop a concise checklist/programmatic document for such projects; avoid using an EA to find out whether you need an EIS. You have the experience to predict at the outset whether a project will have significant impacts. Starting out with an EA then changing to an EIS costs time and money. Also, if a draft EIS eventually demonstrates that the impacts aren't that significant or controversial, don't hesitate to conclude with a FONSI rather than a final EIS. For projects that are a notch above a CE but don't warrant an EIS, develop a short form document that could be called a draft or preliminary FONSI. If nothing comes along to change your mind about the magnitude of impacts, call it a final FONSI. Use an abbreviated Final EIS as provided for in FHWA’s regulations whenever possible.
Shorter Environmental Documents

One of the easiest ways to have shorter and faster environmental documents is to have less to evaluate and write about in the first place. Traditionally DOTs have been reluctant to spend money up front in the NEPA phase to do the level of engineering needed to develop best-fit alternatives. Making a commitment to do more engineering design work early will pay huge dividends in the long run. Honing in on viable alternatives at the outset rather than using multiple wide-band corridors makes for much shorter documents in several ways: Citizens and agencies can provide more specific input and will better understand the project and its consequences, impact evaluation will be efficient and discussions more concise, specific environmental commitments can be identified, and changes between the draft and final documents will be minimal. The level of engineering needed to produce "functional alternatives" is not excessive and can be done using rectified/digitized aerial photography supplemented by spot field survey/observations and GIS data.

Minimize Duplication Between Planning & NEPA Stages

If a proposed highway improvement is located in a Metropolitan Planning area, or if other state or local plans already demonstrate why it is needed, this should also be the core of purpose and need in the NEPA document. Work with FHWA to adopt this approach in your state. The EIS purpose and need statement should simply summarize and reference what has already been studied and documented regarding population, employment, development trends, land use, transportation demand, and multi-modal options. Additional support material would include crash data, traffic forecasts, and a summary of geometric deficiencies specific to the particular highway. The same goes for developing reasonable alternatives. Adopting the planning level work that may have already eliminated mass transit or other non-highway alternatives should allow focusing only on the highway alternatives in the NEPA document.

Merged NEPA/Section 404

Without a doubt, this is one of the best streamlining tools available. Merged NEPA/Section 404 agreements offer a comfortable and formalized process for federal review agencies to participate in purpose and need, alternatives, and selecting a recommended course of action. Aside from setting the stage for expediting permits, the merged process is the best way to obtain agency input for the EIS. Although some states have experienced pitfalls with this process, take the attitude that you can make it work. My experience has been that agencies take their responsibility seriously, provide timely responses, and put more stock in the merged process than in traditional coordination and scoping. An approach that works well goes like this:

• Initial letter to agencies letting them know about the project, that you are using the merged process, and that offers an opportunity to meet and/or review the project corridor;
• Send the draft purpose and need statement and preliminary write up on alternatives as a package; because purpose and need and alternatives are closely linked it makes more sense to review these materials together;
• During their review, take the initiative in following up to answer questions and again offer to meet if needed;
• Ask for a draft copy of their comment letter and resolve any remaining issues before they send the final version;
• Keep agencies updated on any refinements as the Draft EIS progresses;
• Offer to provide a review copy of the entire Draft EIS and notify agencies of public meetings and the hearing;
• When the preferred alternative is selected, prepare a "preferred alternative technical memo" that identifies the alternative, basis for its selection, impacts compared to other alternatives and mitigation measures; send to the agencies for review and initiate follow up; the technical memo will also be the basis for the Final EIS so it isn't duplication of effort.
• Although the merged process involves federal agencies, it can include state review agencies. If they are reluctant to officially sign on to the process, you can still handle coordination the same way—you don't need their permission.

Programmatic Section 106

Recent revisions to the Section 106 procedures allows programmatic agreements at the state level and several states are already working on some agreements with their SHPOs. Sharing experiences as these efforts progress will be very valuable. One of the cleanest and most useful programmatic agreements would be to reach agreement on a specific list of projects like CE's that should be exempt or partially exempt from any Section 106 requirements. For example, projects constructed entirely within DOT right-of-way even if they involve capacity expansion, tree removal and more, should be candidates for being outside the area of effect for adjacent historic structures. Just as private owners can do what they choose to their properties whether eligible to the National Register or not, this same right needs to be recognized for land owned by DOTs. Where construction will occur in undisturbed rights-of-way it is acknowledged that archaeological surveys may be required. Another tool would be programmatic "no effect" and "no adverse effect" agreements for specific types of projects that can't be covered by an exemption agreement.

Programmatic Section 4(f)

Similar to Section 106, states should initiate programmatic Section 4(f) statements that exempt certain types of projects even if they have minor involvement with 4(f) resources. Although there are programmatic 4(f)'s at the national level, these are extremely limited, still require proving that there are no feasible and prudent alternatives, and thus ultimately don't save much time or effort.
Expedite Internal Review

The saying "you are your own worst enemy" is probably truer than it should be at most DOTs. Take a hard look at your internal organization to find out how many people are involved in writing, reviewing, and approving environmental documents. For example, the Wisconsin DOT's structure involves review by the district office environmental coordinator, then by one or more people in the central office environmental bureau, and then by one or more people in the FHWA division office. Another layer is added in districts where a consultant is in charge of the local road program. No matter how efficient the review, making the required loop (usually more than once) takes a long time—an average of two months or more for even the smallest projects. While not suggesting that DOTs change their organizational structure, a simple solution would be to have everyone review the documents at the same time rather than progressing through a chain of command.

For major and controversial projects, ask your FHWA resource center or division office to make sure the FHWA Washington office is in the review loop before the EIS is printed and distributed. It’s not in anyone’s best interest to get adverse comments from these folks after the EIS has been distributed. You should also implement a process with FHWA that exempts certain types of projects and documents from needing their review and approval.

Keep Providing Input to FHWA

FHWA shouldn’t be let off the hook in the quest for environmental streamlining. Last fall many of us commented on the revised NEPA and statewide planning regulations that are now on hiatus with the new administration. We need to stay vigilant and continue pushing for regulations that reaffirm rather than rewrite the original congressional intent under NEPA and CEQ’s implementing regulations.

We also need to push FHWA to completely revamp the Section 4(f) regulations including more and less cumbersome programmatic 4(f)s and integration with Section 106. Further, FHWA should take responsibility for working with the Advisory Council on Historic Preservation to produce programmatic Section 106 agreements at the national level.

If readers have comments about this article, contact Mary Ellen O’Brien, President, Transportation Environmental Management, Inc., 313 Price Place, Suite 207, Madison, Wisconsin 53705; 608-238-8333; transem@execpc.com.

NCHRP Study 25-22 Explores Tools for Integrating Environmental Concerns into Transportation Decisionmaking

by Marcy Schwartz, CH2MHill

NCHRP Project 25-22: Technologies to Improve Consideration of Environmental Concerns in Transportation Decisionmaking is nearing completion. The project is intended to advance the use of current and emerging technologies to achieve improved, implementable transportation decisions. Effective application of these technologies is expected to reduce project development time and enhance environmental quality with the following benefits:

- Conserve environmental resources
- Reduce number of projects in litigation
- Reduce costs
- Increase public understanding of the process
- Increase public trust

The final product is a CD-ROM that incorporates a report, a fictional case study, and a set of diagrams that identify appropriate tools for various steps in the planning and project development process.

The report is presented in eight chapters. Chapter 1 provides an overview of the report as well as a discussion of project assumptions, an explanation of information and institutional trends shaping geospatial technology, a description of four core geospatial technologies that provide a basic underpinning of technology applications presented in the following chapters, and a conceptual approach for consideration of current and emerging technologies. Chapter 2 describes the evaluation criteria and process.

Chapters 3 through 7 each include discussions of a broad technology category and specific technologies within that category (see table). For each technology, the report presents:

- Overview of the technology, explaining what it is, what it does, and how it works
- Applicability to phases in the planning and project development process
- Applicability to various geographic scales
- Application examples
- Technology benefits and limitations
- Technology rating

Chapter 8 provides a summary of the research findings organized in tabular format. One table provides a color-coded summary of all the technology ratings, and others summarize all the technologies with reference to their applicability to the various phases of the planning and project development process and to various geographic scales.
The fictional case study is used to demonstrate 26 technology applications identified as promising for improving consideration of environmental concerns in transportation planning and project development processes are shown on at the end of this article.

Navigation aids are provided throughout the cd-rom to link related information from the report, case study demonstrations, and process diagrams.

A preliminary version of the final product is available for viewing on the Internet at http://projects.ch2m.com/NCHRP25_22/. Some viewers may not be able to "read" all elements of the CD-ROM because of software incompatibilities, but all the elements will be readable on the CD-ROM that will be available for purchase from NCHRP later in 2001.

The project was featured on a Center for Transportation and the Environment (CTE) national videoconference on May 11. More information about the videoconference and directions on how to request a video of the conference are available on the CTE website at www.itre.ncsu.edu/cte/2001teleconferences.html.

For more information, contact Marcy Schwartz, Vice President, CH2MHill, 825 NE Multnomah, Suite 1300, Portland, OR 97232; 503-235-5022; mschwart@CH2M.com.

Development of a NEPA Baseline for Measuring Continuous Improvement: Relationship of the EIS Process to the Overall Transportation Project Development Process

by Kenneth J. Hess (General Manager, The Louis Berger Group, Inc.) & Kreig Larson (NEPA Facilitation Specialist, FHWA)

The US Department of Transportation’s Federal Highway Administration (FHWA), with research assistance provided by The Louis Berger Group, Inc., has recently completed and released results from a study designed to provide a better understanding of the impacts of the NEPA process on the total time involved in delivering a federal-aid highway or bridge project to construction completion. Due to the common perception that NEPA compliance is a major source of delay on such projects, one of the primary intentions of this research was to identify the true schedule implications of NEPA upon the total project development process.

The impetus for this research was directly related to Section 1309 of the Transportation Equity Act for the 21st Century (TEA-21), which directs the Department of Transportation to develop a coordinated environmental review process under the heading of environmental streamlining. In this regard, it was the specific intent of the research to establish a baseline against which to assess future environmental streamlining efforts. Since NEPA is at the center of the several environmental processes that are generally required to be addressed when constructing or otherwise improving federal-aid highways, NEPA was identified as the process to focus upon for establishing such a baseline. Although EISs represent only a small component of total NEPA-compliance studies undertaken by FHWA in recent years, a trend that is expected to continue in future years as well, projects requiring an EIS stand to gain the most benefit from environmental streamlining initiatives. This is due to the fact that EISs are the most comprehensive and time-consuming environmental documents required under NEPA. Therefore, the focus of this research was EIS projects.

The perception that NEPA is the primary factor impacting the timely delivery of transportation projects is further magnified when environmental processes pursuant to other laws and regulations are also required and addressed under the overall NEPA umbrella. For instance, regulations such as Section 4(f) and Section 106, which have their own special requirements but are often performed concurrently with NEPA, can complicate a project’s progress if the applicable resources are present and potentially impacted. In addition, Section 404 permits regarding wetland impacts may be initiated during the NEPA process, but they are generally not completed until after NEPA due to the greater level of design detail required to complete the permit applications.

The reality is that over the 30 years since NEPA was implemented, transportation planners and engineers have ques-
tioned the effect that the NEPA process has had on the timely delivery of transportation projects. Although it is a commonly accepted fact that the NEPA process can often take several years to complete, the time required to complete the entire highway project delivery process has not been well documented or understood. The limited amount of research that has been performed on this subject in the past has not identified the portion of the overall project delivery process that is attributed to NEPA compliance requirements. In reality, there are many other potential sources of process delay that may also exist outside of the actual NEPA process such as funding shortages, compliance with environmental permitting requirements, changes in design, contractor delays, lawsuits and injunctions, etc. Until the impact of NEPA on the transportation project delivery process can be better quantified, it is likely that the popular perception that NEPA comprises a major source of delay affecting the ability to deliver transportation projects in a timely fashion would continue to exist. The recent research performed by FHWA and Louis Berger attempted to isolate the NEPA component of the total project delivery process.

For purposes of this study, the project delivery process was defined as beginning at the time that a project is advanced from a planning phase to an actual committed project, which may or may not begin with the inclusion of the project on a Transportation Improvement Program (TIP) or a State Transportation Improvement Program (STIP). Given the fact that NEPA has been in existence for 30 years and the transition between planning and project development has been somewhat variable during that period, it can generally be assumed that project development begins when federal funds are first allocated at a project level, which usually begins with preliminary engineering.

The elements that are generally considered to be included as part of the full project delivery process are preliminary engineering, final or construction engineering, right-of-way acquisition, and construction. These four major elements have historically been used and recorded as part of FHWA’s Fiscal Management Information System (FMIS) which is a financial database of all highway projects dating back to the 1940s that have been financed using federal funds. Other elements of the overall process such as scoping and NEPA environmental documentation also exist, although they would likely be integrated into one of the four basic elements such as preliminary engineering.

The research study was designed in order to provide a comprehensive, objective, and statistically based approach to identifying NEPA process delays and evaluating their impact on duration of the overall project delivery process. It was the intent of this study from the outset to analyze NEPA process delay implications from a very broad historical and geographical perspective, and to focus only on those projects that have actually been delivered in their entirety (i.e., constructed and fully operating). It was also the intent of this study to utilize several existing and extensive data sets in a manner that would allow at least some statistical analysis of the information in those data sets to be conducted on an essentially random sample of projects taken from the total known universe of relevant projects.

Three primary sources of data were utilized for undertaking the research:

- Northwestern University’s Transportation Library EIS Database served as the starting point for undertaking this research. The library contains more than 4,000 EIS documents prepared for Federal-aid highway projects, dating back to 1970 when the requirements for NEPA documentation first went into effect. Since these EISs are purportedly available for all such projects undertaken in the last 30+ years, the projects covered by these EISs essentially form the total universe from which to draw the study sample.

- The Fiscal Management Information System (FMIS) Database was designed to keep careful track of funds approved and expended on all Congressional appropriations related to the Highway Trust Fund. The database, which is maintained by FHWA, includes more than 3 million individual records and provides instant access to data on current projects as well as all closed Federally funded highway projects. FMIS data is organized into two basic record types, each involving numerous data fields. The first record type, denoted as Type 1, includes basic information about an appropriation, such as appropriation number; project number; project location by state, county and MSA; a brief description of the project limits; a brief description of project activities; when the appropriation was approved; the date of last expenditure; etc. The second record type, denoted as Type 2, includes more detailed data about each appropriation, including nature of the project area; type of highway; functional classification; phase of project development; length of project; funding; appropriation milestone dates; number of lanes; etc.

- Publicly/Available Internet and Commercially/Available Software Aerial Photo and Mapping Databases include: www.terraserver.com (containing aerial photography since 1980 and USGS topoquad); www.mapquest.com (containing localized mapping based on U.S. Bureau of Census Tiger Files from 1990); and MapPoint 2000 cd-rom (containing more detailed, larger scale mapping based on US Bureau of Census Tiger Files from 1990).

Of these three data sources, the EIS documents provided the means for collecting detailed information about each project included in the sample set such as proposed improvements, environmental conditions and impacts, duration of the NEPA process, etc. The FMIS database, in contrast, provided detailed information about dates, types and amounts of appropriations for specific project segments, and provided the ability to assess individual phases of the project development process. Finally, the aerial photo and mapping databases provided the means to ascertain whether or not a project has been fully constructed as proposed in the EIS.

It was determined from the outset that a sample size of 100 completed projects should be used, as such a sample would
provide a reasonable level of statistical validity at a reasonable cost. This random sample of 100 EIS projects was stratified by both geographic region and decade of EIS completion.

After creating and compiling the database, a statistical history of the NEPA process was prepared. The length of the NEPA process in number of years from scoping to FEIS signature, denoted as NEPATIME, was first assessed. Ideally, NEPATIME should be defined as the period from date of Notice of Intent (NOI) in the Federal Register to the signing of the Record of Decision (ROD). However, it was discovered that for approximately half of the study period, those milestone dates could not be identified in a practical or efficient manner. Therefore, the scoping to FEIS signature period was used as a proxy for measuring the total duration of the NEPA EIS process.

A descriptive analysis of NEPATIME was run. The results indicate that the mean value of NEPATIME is approximately 3.6 years, with a standard deviation of 2.4 years and values generally ranging from 1 to 12 years. This information indicates that the average period of time that has been required to comply with the NEPA process during the past 30 years has been about 3.6 years, and the majority of the EISs prepared during that period have ranged between 1.2 years and 6.0 years (based on the standard deviation).

In contrast, the median value of NEPATIME, which is the midpoint among the full set of NEPATIME values that divides the observations into two groups of equal numbers, was determined to be about 3.0 years. The reason that the median value is somewhat less than the mean value is because the higher values of NEPATIME that were included in the analysis (i.e., those approaching the highest value of 12 years) tend to skew the mean on the high side. Therefore, in this case, the median value may be a better indicator of the typical length required for complying with the NEPA process during the past 30 years.

The next step involved exploratory analysis of NEPATIME categorized according to the nine former FHWA regions. The interesting fact that emerged from this analysis is that there are apparent large differences between some FHWA regions with respect to the mean and median NEPATIMEs. The largest difference was found to be between Region 1 (in the Northeast) and Region 10 (in the Northwest). In the case of Region 1, which demonstrated the longest NEPATIME values among the regions, the mean NEPATIME value was approximately 4.7 years while the median NEPATIME value was approximately 4.5 years. At the other end of the spectrum, Region 10’s mean NEPATIME value was approximately 2.2 years, although the median value was only 1.0 year.

Regions 4 (in the Southeast) and 7 (in the Midwest), which had the next highest NEPATIME mean values, also appeared to be very different from Region 10. In the case of Region 4, the mean and median values were approximately 4.4 and 3.0 years, respectively. In the case of Region 7, the mean and median values were approximately 4.3 and 4.0 years, respectively.

After Region 10, Region 8 (the Rocky Mountain states) exhibited the next lowest mean NEPATIME value of approximately 2.6 years. The median value was 2.0 years. It was also found that EISs completed in the 1970s required significantly less time to prepare than those completed in either the 1980s or the 1990s. This is not an unexpected result since the requirements for preparing EISs evolved and became more complex over time. Specifically, it was found that EISs completed in the 1970s took, on average, approximately 2.2 years to prepare. By the 1980s, the average mean for EIS preparation increased to approximately 4.4 years while the average mean increased to approximately 5.0 years in the 1990s. Although an increase is shown to exist between the 1980s and the 1990s, the difference between those two decades was not found to be statistically significant.

Similar to the NEPATIME variable, descriptive statistics were also analyzed for the other factors against which correlations would be made with NEPATIME. Of particular interest is the total length of the project development process from year of preliminary engineering authorization to year that the project opened, denoted as OPMINSTR, during the 30-year NEPA period. Based on the sample, it can be concluded that the mean time for the entire project development process is approximately 13.1 years, although the process has ranged from as little as 3.0 years to as many as 36 years. The standard deviation of approximately 6.7 years indicates that the majority of the cases ranged between 6.4 years and 19.8 years.

A statistical relationship was then established between the length of the NEPA process (NEPATIME) and the total project length (OPMINSTR). Based on mean and median values, it was found that the NEPA process comprises approximately 28% or 27%, respectively, of the total project development time. In other words, between the time that either preliminary engineering or the NEPA process begins, whichever is first, and the end of construction, the entire NEPA process generally comprises only about 27 - 28% of that total period.

Significant relationships were also found to exist between the length of the NEPA process and other variables, such as whether or not Section 404 permits and Section 4(f) evaluations were required. In the case of Section 404 permits, it was found that projects requiring such permits exhibited a significantly longer NEPA process time. NEPATIME was found to be about 4.3 years when a Section 404 permit was involved, but only about 2.4 years when no Section 404 permit was involved. This finding is not a surprise given the increased compliance associated with the additional procedural and technical requirements of Section 404 that would likely have been initiated during the EIS process.

Similarly, in the case of Section 4(f) approvals, it was found that projects requiring such approvals exhibited a significantly longer NEPA process time. Specifically, NEPATIME was found to be about 4.7 years when a Section 4(f) approval was involved, but only about 2.8 years when no Section 4(f) approval was involved. This finding makes sense for the same reason that the Section 404 finding makes sense.
Other regulatory variables such as Coast Guard permits (PERMCG) and Section 106 approvals (SECT106) did not show significant differences in the length of the NEPA process between the with and without scenarios. On the other hand, significant relationships were found to exist between NEPATIME and other factors, but they are not discussed in this article.

As described above, this research identified some variable relationships that could be useful in evaluating the success of future environmental streamlining efforts. First, there appears to be a positive relationship between the length of the NEPA process and length of the total project development process. Second, the average length of time for completion of the NEPA process appears to comprise approximately 27 - 28% of the total project development time. This could be a useful benchmark for evaluating whether or not the NEPA process is efficiently carried forward in a given project. More importantly, shifts away from this average may indicate gradual loss or improvement in efficiency, or changes in the requirements that have changed the length of the process.

The findings in this study allow them to be used for establishing a baseline against which to evaluate the relative success of future environmental streamlining initiatives. However, their usefulness in creating a model for predicting either the length of the NEPA process or the overall project development process is limited at this point in time. The fact that these findings are based on a comprehensive analysis of historical data ensures that the baseline conditions that have been identified reflect the best information available for understanding the NEPA process timelines that have been experienced to date. Although there are some limitations inherent in the data, no other better source of information currently exists.

After a few years, when data regarding environmental streamlining initiatives on current and future projects become available, they can be used for comparison against the findings stated above to assess whether there has been any improvement in terms of the length of the NEPA process under a variety of conditions. Unfortunately, it will be a number of years before any projects being advanced using new streamlining initiatives are actually completed in their entirety. Nevertheless, the baseline information presented in this report will be available and will continue to be valid for making comparisons against future NEPA projects, regardless of when they are completed.

For more information about this research study, please contact Mr. Kreig Larson of FHWA’s Office of NEPA Facilitation at (202) 366-2056 or kreig.larson@fhwa.dot.gov. Portions of the report also will soon be placed onto FHWA’s environmental streamlining website at www.fhwa.dot.gov/environment/stmlng.htm.

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Cumulative Impact Assessment: A Graphical Summary
by John Page, AICP, CEP, Senior Project Manager, Parsons Brinckerhoff Quade & Douglas, Inc.

In October 1999, a paper entitled "Cumulative Impact Assessment and Its Application to a Transportation Project" by Lorna Parkins and me was published in Transportation Research Record No. 1670. One item that I contributed to the original draft was a summary presented in the form of a flow chart. It was dropped from the article in favor of a text summary because the font size of the flow chart did not meet the article submission criteria. Please note the summary flow chart on the following page.

The easiest way for me to understand a complex methodology is to create a summary of key words organized in the form of a flow chart. The key words remind me of what needs to be addressed and the flow chart reminds me of their interrelationships and sequence. This flow chart has proved useful to me in three ways. First, the earliest version was created when I was developing the secondary and cumulative impact assessment methodology for the Mid-Currituck Sound Bridge Draft Environmental Impact Statement in 1995 (described in the Record article). The purpose of the original chart was to bring together and make clear the literature on secondary and cumulative impacts and how it might apply to the project. The chart served as the foundation of the scope of services and lump sum budget that was negotiated with the North Carolina Department of Transportation for the analysis. Second, the flow chart served as a checklist and reminder throughout the preparation of the secondary and cumulative impact assessment for the Mid-Currituck project. It helped my staff and me to be certain each component of the analysis was completed, and it gave us firm direction. Finally, I use the flow chart in its present form as a teaching aid and guide for new staff. I hope it will prove useful to you.

If you have any comments about this flow chart, contact John Page at Parsons Brinckerhoff Quade & Douglas, Inc., 991 Aviation Pkwy, Ste 500, Morrisville, NC 27513; phone: 919-468-2130; fax: 919-467-7322; pagej@pbworld.com.
A1F02 Year 2001 Member List

For readers' benefit, here is a list of current (2001) members of TRB Committee A1F02. In the November 2000 newsletter, only a portion of the list was published. Here it is again.

Carol Cutshall (chair), Wisconsin DOT; Douglas Smith (secretary), Parsons Brinckerhoff; Dr. Mohamed Hadi Bajaj, American University of Beirut (New York, NY); James Bach, Louis Berger & Associates; James Bednar, Parsons Brinckerhoff Ohio, Inc.; Marion Butler, Arkansas State Highway and Transportation Dept.; Ronald DeNadai, STV, Inc.; Andras Fekete, New Jersey DOT; Professor Istvan Fi, Budapest University of Technology; Peter Frantz, Illinois DOT; Kenneth Gambrill, Carter & Burgess, Inc.; Timothy Hill, Ohio DOT; Patrick Klampe, CH2MHill; Dr. Parviz Koushki, Kuwait University; Mark Kross, Missouri DOT; James Martin, NC State Univ./CTE; Dr. Bill McCartney, Michael Baker Jr., Inc.; Dr. Gary McVoy, New York State DOT; Paul Nikituk, CH2MHill; Dianna Noble, Texas DOT; Frank Papko, Minnesota DOT; Denise Rigney, US Environmental Protection Agency; David Robinson, North Carolina DOT; Shari Schafflein, Washington State DOT; Joseph Shalkowski, Michael Baker, Jr., Inc.; Fred Skaer, FHWA; Edrie Vinson, FHWA; Robert (Jake) Jacobsen (Emeritus Member); Wayne Kober (Emeritus Member).

Others can become "friends of the committee" by contacting Carol Cutshall. Carol can be reached at 608-266-9626. Her e-mail is carol.cutshall@dot.state.wi.us. Jon Williams, Senior Program Officer at TRB, is the committee's TRB staff representative. Jon can be reached at 202-334-2938 or jwilliam@nas.edu.

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 ½ " 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 computer word application is Microsoft Word (although I should be able to translate/convert 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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Subcommittee chairs are expected to submit reports on committee activities. Announcements, Features (e.g., reports on activities or news of interest) and Requests for Information may be submitted by anyone.

I'll request articles for the November 2001 newsletter in August. Please feel free to submit articles anytime during the year, but recognize that we intend to publish in May and November. The TRB A1F02 Newsletter is published twice a year by Michael Baker, Jr., Inc., 770 Lynnhaven Pkwy, Ste 240, Virginia Beach, Virginia 23452. Committee A1F02 truly appreciates Baker's assistance.

Editor’s Notes

by Mark Kross, Missouri Department of Transportation

Thanks to those persons who contributed articles for this newsletter. If they weren't all published, it is because of size limitations and mailing costs. Look for your article in a future issue. Since I've been busy with planning and arrangements for the summer meeting in St. Louis, the May 2001 edition is now a June 2001 edition. I'll be asking for materials in August for submittal by mid October 2001 for the November 2001 issue. If you already have material, disregard these dates and send it to me now. I can stockpile the materials.

Thanks again to Margit Fountain and Jennifer Talbott of Michael Baker, Jr, Inc. for their help in publishing and distributing the newsletters.

I hope to see you all at the summer meeting in St. Louis.