

On Native Ground: Collaborative Transportation Planning on Indian Reservations

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A pilot transportation plan, applying the new guidance of the Intermodal Surface Transportation Efficiency Act (ISTEA) to a Native American reservation, has been developed. This plan, for the Cherokee Indian Reservation in western North Carolina, was a cooperative venture between the federal government, the state of North Carolina, and the Eastern Band of the Cherokee Indians. Ways to increase tribal control over future transportation planning are recommended. Indian tribes are explicitly intended to benefit under the new, more open transportation planning process established by ISTEA. The study devoted particular attention to the nontechnical, process-oriented phases of transportation planning—much more than in most transportation plans prepared by outside consultants. Given the lack of tribal involvement in planning reported in the literature, it was assumed that such emphasis would be necessary. Despite the focus on process and local participation, efforts met with mixed success. Difficulties in accomplishing standard transportation planning collaboratively with a tribe include past intergovernmental tensions, a tradition of grant-seeking as a substitute for long-range planning, and a lack of tribal commitment to plans prepared by outside consultants. To overcome such factors, more substantial changes to the traditional transportation planning process may be necessary. The recommended approach brings tribal leaders and their concerns more actively into transportation planning. Lacking in-house transportation expertise and commitment to comprehensive planning, a more collaborative approach—combining the traditional, time-tested technical planning process with strategic elements—is suggested. Strategic planning, with its focus on the critical issues perceived by local leaders, is more likely to engage and capture the attention of tribes previously outside the transportation decision process. It is also more likely to generate plans that are understood and supported by tribal leaders.

This paper reports on a pilot transportation plan for the Cherokee Indian Reservation in western North Carolina. A recent change in federal transportation policy mandates increased tribal participation in transportation planning on reservations; the process used to develop this plan was an important first step in that direction. The plan is the result of a unique, cooperative venture between the federal government, the state of North Carolina, and the Eastern Band of the Cherokee Indians. We reflect on this cooperative effort and make recommendations on how tribal participation in transportation planning can be increased on this and other reservations.

In crafting a new federal transportation policy for the 1990s, Congress sought to open the decision-making process to a number of

formerly excluded constituencies, including Native Americans. For example, the finance, construction, and maintenance of highways in the United States has historically been a cooperative venture between the FHWA and the state departments of transportation. Most other constituencies—regional governments, counties, cities, citizen groups, environmentalists, Indian tribes, etc.—have traditionally played only secondary roles in shaping highway development. This traditional arrangement—with the federal and state departments of transportation at the center and all others on the periphery—was fundamentally changed with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. Under ISTEA, local governments and interest groups are ceded a larger role in the development of local highway, street, and transportation systems.

Indian tribes are explicitly intended to benefit under the new, more open transportation planning process established by ISTEA. And, in addition to general provisions that provide for increased cooperation, ISTEA also provides specific assistance to Native Americans, in terms of both funding for transportation projects and improved planning. Given the historical lack of tribal participation in transportation planning, our study focuses on the process of developing a transportation plan for the Eastern Band of the Cherokee Indians to make recommendations to improve cooperative federal, state, and tribal transportation planning.

PROCESS AND PRODUCTS: DEVELOPING A TRANSPORTATION PLAN FOR CHEROKEE

This project began with informal discussions between the Eastern Band of the Cherokee Indians (EBCI) planning staff and FHWA staff during 1992 over the need for cooperative federal, state, and tribal transportation planning on the Cherokee Reservation. From the outset, this study had two specific goals:

- To cooperatively develop a plan for the Cherokee Reservation for long-range transportation development, transportation project selection, and promotion of tourism recreational travel; and
- To use this joint planning venture as a model for future cooperative transportation planning efforts on Indian reservations nationwide.

The first of these two goals was met with the completion of the *Cherokee Indian Reservation Transportation Plan* in June 1994 (1). A second report—which proposes a model for future cooperative federal, state, and tribal transportation planning—was completed in August 1994 (2) and is summarized in this paper.

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Given the focus on cooperative planning, a diverse project team and project advisory committee were assembled. The project was headed by the Technology Transfer Center at the University of North Carolina Institute of Transportation Research and Education (ITRE). ITRE was selected because the Technology Transfer Center specializes in local government outreach and training in transportation engineering. The project team, which was composed entirely of non-Indians, worked with Cherokee tribal planning staff under the guidance of a large and diverse technical advisory committee. This committee, which included both tribe members and nontribe members, initially comprised representatives from the tribal government, tribal transportation, tribal travel and promotion, the Bureau of Indian Affairs (BIA), adjacent county governments, the National Park Service, and the Tennessee Valley Authority. A representative from the EBCI Senior Citizens Program, which operates van service for elderly and disabled tribe members, was later added to the committee.

The preparation of the plan and the bulk of the technical analysis were done by Kimley-Horn and Associates, Inc., a private transportation planning and engineering firm in Cary, North Carolina. The Kimley-Horn staff was assisted in several areas by faculty and students from area universities (see Table 1):

- The Department of City and Regional Planning at the University of North Carolina at Chapel Hill assisted with public participation and needs assessment.
- The Department of Park, Recreation, and Tourism Management at North Carolina State University assisted with tourism forecasts.
- The Departments of History and Anthropology at the University of Tennessee, Knoxville, provided background information on Cherokee culture, politics, and archaeology.

Responsibility for process observation and assessment, including the preparation of this report, was assigned to the team from the Department of City and Regional Planning at Chapel Hill. Its role was not simply to observe and record; it worked actively through-

out the project to facilitate tribal participation in the planning process, with assistance from the Cherokee Tribal Planning Office, ITRE, and Kimley-Horn.

Planning Process

Typically transportation planning studies can be divided into three principal phases: preanalysis, technical analysis, and postanalysis (3). Outside assistance is most often sought for the middle phase—technical analysis—where most of the specialized technical analysis is performed. The initial and concluding phases—pre- and post-analysis—are most often generated locally without substantial outside assistance.

Given our focus on process, this study devoted particular attention to the initial and concluding phases of transportation planning, much more attention than would be found in most transportation plans prepared by outside consultants. Such emphasis is supported in the literature on transportation planning in Native American settings. In their study of transportation planning in poor, rural areas, for example, Hauser et al. (4) stress the importance of establishing local community organization and developing detailed implementation plans.

The outreach efforts in our planning process drew heavily on the work of Crain and others on transportation planning in Native American settings. With regard to the preanalysis phase, Crain (5) addresses how to elicit goals in a Native American community based on his transportation planning work for the Menominee Nation. In Crain's study, the work was guided by an advisory committee made up of people whom the tribal leadership felt would be interested in transportation and informed by interviews with other people who, because of their responsibilities within the tribe, would have insights into the tribe's transportation needs. Once established, this process was used to enumerate and evaluate the goals, which were then broken down into categories and listed in their order of priority (based on the number of people expressing the goal, the frequency of the expression, the range of groups expressing the goal, and the intensity of the expression).

TABLE 1 Project Organization for the Cherokee Transportation Plan

Project Management	
Primary Responsibility	• UNC Institute for Transportation Research and Education
Secondary Responsibility	• Cherokee Transportation Plan Project Advisory Committee • Cherokee Tribal Planning Office
Plan Preparation	
Primary Responsibility	• Kimley-Horn and Associates, Inc.
Secondary Responsibility	• Department of City and Regional Planning (University of North Carolina at Chapel Hill) • Department of Park, Recreation, and Tourism Management (North Carolina State University) • Departments of History and Anthropology (University of Tennessee, Knoxville) • UNC Institute for Transportation Research and Education
Process Observation and Assessment	
Primary Responsibility	• Department of City and Regional Planning (University of North Carolina at Chapel Hill)
Secondary Responsibility	• Cherokee Tribal Planning Office • UNC Institute for Transportation Research and Education • Kimley-Horn and Associates, Inc.

Drawing from Crain's work, our study devoted a high level of effort to local participation. Specifically,

- We included as many stakeholders as possible on the Project Advisory Committee (from both on and off of the reservation and including both tribal members and nonmembers).
- We relied heavily on the tribal planning staff to advise the consultant team on logistics, to offer introductions, and to set up meetings with officials.
- We conducted interviews of tribal leaders and representatives of business and citizens groups to learn about the institutional framework and the specific transportation issues.
- We held planning workshops—allowing participants to walk through a number of maps, videos, and other displays—to create a more informal, participatory forum than typical public hearings.
- We asked tribe members and visitors attending the Cherokee Fall Festival to identify transportation needs and concerns in a survey conducted by the Cherokee Tribal Travel and Tourism Office.

Throughout the project, the planning team promoted a cooperative, participatory planning process. At the outset, experts on Cherokee history and culture provided information regarding public participation and the local political process. The inaugural meeting of the Project Advisory Committee in July 1993 focused on ways to encourage local participation in the planning process. And during the summer of 1993, nine in-depth interviews were conducted with key local actors regarding transportation needs and encouraging local participation. Our efforts to encourage local participation are summarized in Table 2 and described in detail in the pages that follow.

Responses from the preliminary meetings and interviews indicated that transportation was a relatively low-profile issue on the reservation and, therefore, it would be difficult to encourage active participation in the planning process from tribal council members, business leaders, and the general public. Throughout the study

period, the dominant public issue on the reservation was whether casino-style gaming could and/or should be established in Cherokee. This issue commanded local policy making and, in many ways, preempted interest in transportation planning by local leaders and tribe members.

Preanalysis: Encouraging Local Participation to Determine Goals, Issues, and Problems

Planning studies, especially those not specifically governed by a planning board or commission, are frequently overseen by advisory committees composed of appointed, interested parties. In this respect, the organization of a project advisory committee for the Cherokee transportation plan was fairly typical.

From the outset, the planning team sought the broadest possible representation on the committee, though with little knowledge of local institutions or actors, we relied primarily on Cherokee tribal planning staff to select and invite advisory committee members (see Table 3).

The committee primarily comprised representatives from tribal, adjacent local, state, and federal governments. Initially 4, and later 5, of the 15 committee members were directly affiliated with the tribe; the remaining 10 members represented outside agencies (including the Bureau of Indian Affairs). However, thanks to invitations to other Cherokee leaders to participate during the study, actual attendance by tribe members at committee meetings was about equal to attendance by other representatives. While inclusion of representatives from outside agencies was probably warranted, the ratio of "outside" committee members to "inside" or tribal members was problematic for at least two reasons.

First, and foremost, having more tribal members on the committee could have stimulated more local interest and participation in the project. Many of the key actors interviewed at the conclusion of the study reported that the transportation plan was initially viewed by

TABLE 2 Efforts To Encourage Local Participation in Cherokee Transportation Plan

Outreach Effort	Date	Outcome
<i>Pre-Analysis Phase</i>		
Advisory Committee Meeting	7/93	57 % attendance (8 of 14 members)
Key Actor Interviews	7/93	Five interviews
Tribal Council Presentation	8/93	Questions about project scope; member added to the Project Advisory Committee
Public Meeting	9/93	Poor attendance (4)
Key Actor Interviews	9/93	Four interviews
Advisory Committee Meeting	9/93	60 % attendance (9 of 15 members)
<i>Technical Analysis Phase</i>		
Local/Visitor Travel Surveys	10/93	44 local residents, 20 visitors
<i>Post-Analysis Phase</i>		
Advisory Committee Meeting	2/94	53 % attendance (8 of 15 members)
Tribal Council Presentation	5/94	End of a long agenda; discussion cut short by late hour
Follow-up Key Actor Interviews	5/94	Six interviews
Tribal Council Workshop and Advisory Committee Meeting	5/94	Poor Council attendance (2) and 40% committee Attendance (6 of 15 members)

TABLE 3 Composition of Project Advisory Committee

Representation	Number	Attendance
<i>Official Advisory Committee Members</i>		
Chief's Office, Cherokee	1	0 % attendance
Tribal Council, Cherokee	1	75 % attendance (representative changed during study)
Tribal Planning Office, Cherokee	2	100 % attendance
Senior Citizens Program, Cherokee	1	67 % attendance (added to committee after 1st meeting)
Bureau of Indian Affairs, Cherokee	1	75 % attendance (representative changed during study)
Heywood County, Waynesville	1	0 % attendance
Jackson County Transit, Sylva	1	75 % attendance
Swain County, Bryson City	1	25 % attendance
National Park Service, Gatlinburg	1	75 % attendance (representative changed during study)
Tennessee Valley Authority, Knoxville	1	75 % attendance
North Carolina Department of Transportation, Asheville	1	0 % attendance
North Carolina Department of Transportation, Raleigh	1	75 % attendance
Federal Highway Administration, Raleigh	1	75 % attendance
Federal Highway Administration, Washington	1	0 % attendance
<i>Other Advisory Committee Meeting Attendees</i>		
Cherokee Boys Club, Cherokee	1	50 % attendance
Hotel Operator, Cherokee	1	25% attendance
Tribal Council, Cherokee	1	50% attendance (attendance by non-committee members)

many as a study by outsiders for outsiders. The struggle to overcome this "outsider" perception was made more difficult by the relative lack of local representation on the project advisory committee.

The second problem with having fewer tribal members on the advisory committee was the relative lack of local knowledge of tribal transportation issues. For example, despite tourist access to the reservation and tourist-related traffic congestion in the summer months being primary issues addressed in the plan, there were no representatives from the Tribal Travel and Promotion Office or from the reservation hotel-motel operators. Nor was there, initially, a representative from the local transit service for the elderly and handicapped.

A representative from the local elderly and handicapped van system requested participation in the study and was added after the first advisory committee meeting. The addition of this representative from the Cherokee Senior Citizens Program to the advisory committee is an interesting story of the input of cable television to public participation. The director saw the initial project presentation to the tribal council by the consultants on the local public-access television station. Concerned at being excluded from a study directly related to her work, the senior center director drove immediately to the Council House and, while the consultant presentation was still in progress, addressed the council and asked to be included in the study. She was immediately added as a member.

As a rule, the outside members, with a few exceptions, played less active roles in the meetings. Most tended to observe and com-

ment only on issues that related to the agency they represented. Perhaps not surprisingly, the tribal representatives tended to be more active participants. In follow-up interviews at the conclusion of the study, at least two tribal committee members admitted to not fully understanding the purpose of the study or the role of the advisory committee. And the meandering discussions in many of the meetings, though often fruitful and informative, confirmed this confusion.

Technical Analysis Phase

The technical analysis process was quite straightforward, though no formal travel demand modeling was performed. Perhaps typical of transportation planning in small towns and rural areas, the land use, traffic, and accident data were often incomplete, limited, or otherwise unusable, which constrained the scope of the analysis somewhat. In particular, the lack of existing detailed land use data and the uncertain possibility of future large-scale gaming on the reservation rendered all forecasts of future traffic levels quite speculative.

Demographic data were available through the U.S. Census and the Tribal Planning Office. Tourism data were provided by the North Carolina Department of Commerce. Data on the street and highways system came from tribal maps, the Bureau of Indian Affairs, the North Carolina Department of Transportation (DOT),

previous reservation transportation plans, and the current North Carolina Transportation Improvement Program. Finally, travel information was supplemented with travel survey data.

Using the *Highway Capacity Manual* (6), the consultants estimated current peak traffic congestion levels (expressed in terms of "roadway levels of service") at 11 locations throughout the reservation. They then used population growth, tourism projections, and the travel survey data to estimate traffic levels for the year 2015 and calculate future roadway levels of service. The results, quite predictably, showed that already severe peak tourist season traffic congestion will likely worsen considerably in the coming years without substantial capacity improvements on key roadways.

Interestingly, a number of transportation problems, unique to the Cherokee Reservation, arose during the interviews and public meetings that would have been difficult to identify through standard aggregate data sources and analytical techniques. For example, pedestrian travel was a frequently cited problem, somewhat of a surprise for a small town with a widely dispersed, largely rural residential population. Respondents to the travel survey identified "no place to walk" as the single biggest transportation problem on the

reservation. Relatively low incomes, low levels of automobile ownership, frequent "casual carpooling" with relatives and neighbors, and a cultural tradition for walking combined to make pedestrian travel—particularly among the young and old—a far more common means of travel than is found in most small towns and rural areas. The general absence of sidewalks and shoulders along reservation roads forces people to walk in the traffic lanes and results in proportionally high numbers of pedestrian accidents and fatalities. As a result, lack of sidewalks was considered an important transportation deficiency by local residents. (State transportation policy, by contrast, considers sidewalks on state roads an enhancement and not an integral part of the state roads system.)

From this combined quantitative-qualitative work, the consultants prepared a technical memorandum documenting the analysis and identifying a list of transportation deficiencies that were then organized into a list of four major categories during committee discussion (Table 4). These categories differed from those in traditional transportation plans in that they included a number of community policy issues as well as deficiencies in transportation infrastructure and maintenance.

TABLE 4 Transportation Deficiencies Identified in the Technical Analysis Phase

Downtown Cherokee Area
Parking issues (on-street parking, fringe parking)
Intersection improvements, including signalization
Capacity deficiencies (congestion)
Sidewalks and pedestrian facilities
Major Roads Approaching Cherokee
Capacity deficiency on US 19 (the principal east-west highway)
Capacity deficiency on US 441 north (the principal north-south highway)
Safety improvements on US 19 (passing lanes, guardrails, etc.)
Sidewalks on US 441 and US 19
Welcome centers, rest areas
Local Streets and Roads
Street name signs
Paving program for unpaved streets
Provisions for pedestrians and bicycles
Local street maintenance program
Bridge repairs and replacements
Policy Issues
Downtown redevelopment
Land use planning
Development standards (site plan and driveway reviews, traffic impact studies, etc.)
Sidewalk policy
Residential driveway design and maintenance
Public transportation
Continuing transportation planning

Postanalysis Phase: Solutions and Strategies for Implementation

Following the recommendations of Crain (5) and Anding and Fulton (7), the plan devoted considerable attention to the postanalysis phase, particularly the implementation of recommended solutions. A number of transportation-related plans have been prepared for the reservation over the years, but these plans—all of which were prepared by outside consultants or agencies—have been relegated to the shelf and do not appear to guide current transportation or development activities. To overcome the problem of implementing transportation plans, the current plan identifies specific improvement projects to be undertaken for each of five issue areas defined in the plan. Each project identified included a description, estimated cost, estimated implementation time, and, importantly, the institution or institutions (i.e., tribe, BIA, North Carolina DOT, etc.) responsible for project implementation.

Given the problem or issue list developed during the technical analysis phase, the goal of the final phase of the plan was to solicit input on the list, prioritize the issues, develop a set of specific projects to address each of the prioritized issues, and, finally, develop an implementation strategy for each of the projects. This final goal—an implementation plan within the plan—was critical given the failure to implement most of recommendations in previous plans.

Summary

The outreach efforts in this planning process were clearly a mix of successes and failures. Efforts to reach and include individuals—key actor interviews and travel surveys—clearly worked best. Next best were the advisory committee meetings; these small group settings were fruitful but unevenly attended. Least successful were the formal presentations and large meetings—Tribal Council presentations, public meetings, and the Tribal Council workshop. Despite the persistent efforts of the project team to pursue such forums, they stirred very little interest or participation.

Under the institutional conditions encountered on a reservation, it is difficult to carry out a standard transportation planning process collaboratively with a tribe. As previously outlined, such efforts are plagued by past intergovernmental tensions, a tradition of grant seeking as a substitute for long-range planning, and a lack of tribal commitment to transportation plans prepared by outside consultants. In addition, other likely problems are

- Low priority for transportation planning, relative to immediate tribal issues viewed as more pressing, so that leaders will be reluctant to devote time, attention, and resources to plan preparation.
- Lack of interest in the abstract planning process itself, which requires progressing through sequential steps of technical inventory and analysis to make recommendations, so that attention focuses on the funds allocated to the planning process and its outputs rather than on the critical intervening decisions.
- Absence of land use regulations, such as zoning, subdivision regulations, and design standards to implement plans and provide a continuing basis for organized development of reservation lands. Instead elected officials allocate land on request for residential use and negotiate short-term leases for commercial use; the resulting projects are often poorly designed and uncoordinated with little or no consideration of parking, access, or traffic.

- Difficulty by outside consultants and transportation planning bureaucrats in understanding differences between transportation politics on reservations and in other American communities, so that incorrect basic assumptions are not challenged and “standard” practices are not properly adapted, until late in the planning process when the critical lessons have been learned by both tribal planners and outside consultants.

To overcome these and other problems encountered on Indian reservations, we believe it is necessary to revise and expand the traditional transportation planning process. Our approach seeks to fit transportation planning more closely into the conditions of the tribal setting.

STRATEGIC PLANNING: A RECOMMENDED MODEL OF EFFECTIVE TRANSPORTATION PLANNING IN NATIVE AMERICAN SETTINGS

Transportation planning is both an art and a science. It is an art in that goals, objectives, problems, and issues are difficult to define, and consensus is a challenge to achieve. It is a science in that established methods and techniques exist to analyze existing transportation systems and forecast changes. Traditionally in transportation planning, the “art” has been the responsibility of the local planners and “science” the domain of the outside consultants. The role of the outside consultants, in other words, has usually been confined to the technical, analytical side of transportation planning.

From our experience of preparing a transportation plan for Cherokee, North Carolina, we emphatically believe that this traditional division of labor between local planners and outside consultants does not and will not work in Native American settings. Unless there exists in-house transportation planning expertise on the reservation and local commitment to comprehensive planning, we suggest that an alternative, strategic approach be adopted for transportation planning on Indian reservations.

And given that a principal goal of ISTEA is an effective *collaborative* intergovernmental planning process, the planning approach used must fulfill some basic requirements:

- A collaborative transportation planning process must be treated as a “new idea” that is introduced to the tribe, marketed to key local stakeholders, and carried out as an innovation that requires the acceptance of behavioral change.
- One or more tribal leaders and staff members must be enlisted as “champions” of transportation planning, lending their prestige and status to the activity to give it a high priority on the tribal agenda.
- The plan must be conceived as a combination of short-range visible projects and long-range system improvements, to demonstrate its practicality and usefulness and to create a multiyear implementation program relying on various transportation suppliers (BIA, FHWA, state DOT, etc).
- The technical transportation work must be enlarged to include participatory methods that engage tribal leaders in all phases of the planning so that dialogue is maintained throughout and tribal values and perspectives are respected.

We recommend an approach that combines the traditional, time-tested technical planning process with elements of a more strategic planning process. Strategic planning originated in the private sec-

tor, and has been adapted to a number of public-sector planning situations. As proposed by Bryson and Einsweiler (8), strategic planning involves the following:

- Issue or problem focus to deal with recognized community concerns
- Participatory agenda framing and decision making by stakeholders
- Strategic, near-term implementation focus; and
- Consideration of both external and internal influences.

The standard transportation planning approach consists of three phases—preanalysis, technical analysis, and postanalysis (3). Each of these includes several tasks, though typically the most effort is expended in the technical analysis tasks:

1. *Preanalysis*
 - Problem or issue identification
 - Goals and objectives formulation
 - Data collection
 - Alternatives generation
2. *Technical analysis*
 - Traffic projection modeling
 - Deficiency assessment
 - Capacity and level of service modeling
 - User surveys
3. *Postanalysis*
 - Alternatives evaluation (economic and noneconomic)
 - Recommendations
 - Implementation
 - System monitoring

The typical strategic planning approach consists of eight tasks (9). As adapted to illustrative reservation concerns, these tasks consist of

1. *Forging initial agreement to collaborate:* making a plan for planning to which both tribal and related stakeholders are committed;
2. *Identifying mandates:* from laws such as ISTEA or the Indian Self-Determination and Education Assistance Act (PL 93-638);
3. *Preparing mission and values statements by stakeholders:* attempting to include all those with claims on reservation resources;

4. *Identifying external opportunities and threats:* such as gaming proposals, tourism and travel trends;
5. *Identifying internal strengths and weaknesses:* such as past transportation plans, conflicts with BIA, and the like;
6. *Agreeing on high-priority, strategic issues:* such as decongesting or increasing safety on main roads;
7. *Describing the future vision of success:* such as a reservation where both Indian and tourist travel is multimodal, safe, efficient, and pleasant; and
8. *Developing strategies:* practical alternatives such as lobbying for inclusion of tribal road improvements on state transportation improvement program.

We recommend that these tasks, combined with those of the standard transportation planning approach, be carried out through a series of parallel steps with the technical work feeding into the strategic planning process. Some steps can accomplish more than one task; other tasks may be spread out over more than one step. The focus for all the steps is the *transportation system*—the combination of physical facilities and organizations that provide transportation services.

The parallel tasks in a strategic transportation planning approach are shown in Table 5.

The techniques include both the standard technical methods of the transportation planner and the public involvement methods of the strategic planner. Since transportation planning practice is well established, we focus more on the public involvement methods, which are nicely summarized in *Innovations in Public Involvement for Transportation Planning* (10).

It is important to note here that strategic planning does not replace, but complements, the standard analytical techniques of transportation planning, such as travel forecasting, level of service determination, and traffic impact analysis. Without an institutional framework for planning—a context to make use of such technical analyses—the analyses become irrelevant and the plans that contain them gather dust on the shelf.

Since many of the strategic planning elements are related to ongoing events, the process should not be visualized as a mechanical sequence, but rather as a dynamic learning process in which some steps may be repeated as new information or insights emerge. Instead of a linear sequence, the approach could be conceived as a *strategic learning loop* (Figure 1) that could be entered at various points and pursued in various patterns, including returning to an ear-

TABLE 5 Proposed Integration of Strategic Planning with Standard Transportation Planning Practice on Indian Reservations

<i>Traditional Model</i>	<i>Strategic Model</i>
1. Pre-Analysis Phase	1. Organize for Planning
	2. Identify Mandates
	3. Prepare Mission/Values
2. Technical Analysis Phase	4. Analyze External Environment
	5. Analyze Internal Environment
	6. Agree on Strategic Issues
3. Post-Analysis Phase	7. Envision Future System
	8. Formulate Strategies and Plan



FIGURE 1 Strategic learning loop.

lier step if necessary. The significance is not in rigidly following the steps but in engaging and educating the stakeholders through an ongoing, participatory process leading to a plan.

What we advocate here is a strategic process that creates an environment in the unique setting of the reservation where effective transportation planning can occur. This strategic approach radically alters the role of the transportation planning consultant: from hired gun to planning advocate, and from technical expert to technical expert and process facilitator. Our experience has convinced us that the strategic planning approach offers an ideal vehicle to develop local interest, promote tribal participation and control, facilitate effective analyses, and increase implementation in the unique social and institutional settings on Indian reservations.

POSTSCRIPT: BUILDING IN-HOUSE PLANNING SKILLS

An important lesson from the Cherokee case study is that tribes frequently lack both the technical and the strategic planning skills to carry out effective transportation planning. This makes them dependent on outsiders for these skills. And this dependence reproduces dependence through time. The obvious solution to this cycle of dependency is to build the skills base within the tribe to make transportation (and other related forms of physical planning) an ongoing part of tribal practice. Tribal planners with transportation planning skills can make transportation planning part of the daily fabric of reservation activities and place it high on the tribal agenda. Some investment now in transportation skills building for Native Americans will have a high future payoff in terms of much more efficient and effective reservation transportation systems.

To remedy the lack of technical and strategic planning skills, we recommend that the federal government create a professional transportation education program and market it to Native Americans desiring to pursue planning careers. The program would consist of apprenticeships for high school students and scholarships and fellowships to university degree programs in transportation, urban, and regional planning. \$200,000, for example, would train 12 Native American planning fellows each year. Selected fellows

would receive mentoring for practice-oriented degrees at both the bachelor's and master's level. During the summers, they would serve internships in tribal planning and transportation offices, as well as in state DOT and BIA offices. Following completion of their education programs, they would be expected to return to the reservation for at least 2 years, where they would be attached to the tribal planning office. Finally, workshops could be held for tribal planners and elected officials on project management and institutional arrangements.

Such a program would be entirely consistent with both the Indian Self-Determination and Education Assistance Act and ISTEA and would remedy many of the problems with transportation planning consulting on Indian reservations by, over time, rendering them moot.

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