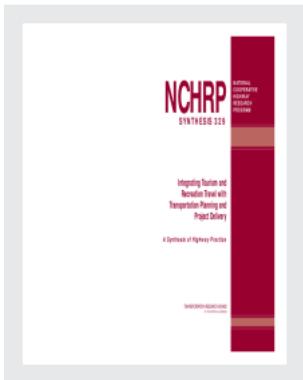


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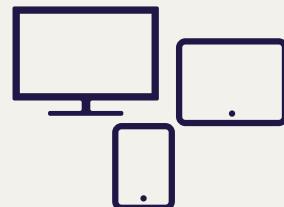
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CHAPTER TWO

LITERATURE REVIEW

This chapter provides an overview of technical research regarding the application and effectiveness of various types of transportation projects to support tourism and recreational activities. A few examples of research addressing the tourism travel needs of specific user groups are included. This chapter also reviews available policy research on multi-agency collaboration processes in transportation planning and decision making. The reports cited here focus primarily on roads, except for transit systems within national parks.

TRANSPORTATION TO SUPPORT PARKS AND OTHER TOURIST ATTRACTIONS

In the context of tourism planning, investment in new and expanded transportation facilities can serve to either support the operation and development of attractions (such as national parks) or function as attractions in their own right (such as scenic byways). For both types of situations, technical studies can serve to identify needs, analyze proposed alternatives, and evaluate the impacts of built projects.

More focus has recently been given to the transportation needs in national parks as a result of the levels of visitor demand exceeding the transportation infrastructure within many of the parks. The National Parks Service (NPS) mandates that park plans and planning activities address transportation aspects related to and affecting the park. As a result, various studies have assessed the cost-effectiveness and practicality of alternative transportation solutions, including roads, parking, bus service, trams, and other forms of transit facilities. Representative studies relating to national parks include the following:

- “Transportation Needs of National Parks and Public Lands” (Eck and Wilson 2001) is a memorandum produced by TRB’s Task Force on Transportation Needs for National Parks and Public Lands (A5T55). It summarizes the concerns posed by the increasing number of peak-period visits by automobile travelers to national parks and other public lands. The memo discusses the need for federal land management agencies to balance open access to these sites with environmental stewardship of these resources. It notes that the use of alternative transportation systems for national parks was first studied in 1994 and a report was submitted to the U.S. Congress. Three years later the U.S. Department of Interior and the
- U.S.DOT established an MOU to implement efficient transportation systems for national park access (a copy of the MOU can be found on the NPS website under the link for “Alternative Transportation”). This document also highlights the difficulties that remain in bringing tourism interests into the transportation planning process and stresses the need for a forum where these different stakeholder perspectives can be brought to bear in joint solutions for tourism-serving interests.
- “Visitor Transportation at U.S. National Parks” (Turnbull 2001) is an article from TRB’s *TR News* summarizing some current alternative transportation initiatives now underway at Acadia, Zion, and Grand Canyon National Parks.
- The NPS’s *Transportation Planning Guidebook* (2000) acknowledges that transportation planning is an “integral, defining feature of the national park experience and a means by which the park mission of protecting resources for the enjoyment of future generations can be realized.” This comprehensive guide is a resource for park managers and staff, as well as community partners to understand the types of TEA-21 funds that can be put to use, how to go about an inter-agency planning process, and who to involve in the transportation planning and design for the national park setting. Project implementation is also addressed by providing examples of how project partners can help raise funds from state and local matching sources to cover capital costs and future operating costs. The guidebook provides several successful case studies on the topics of successful partnerships, transportation analysis within the context of park needs, and innovative solutions to transportation challenges arising from traffic in and around national parks.
- The *Federal Lands Alternative Transportation Systems (ATS) Study* (Ecker et al. 2001), conducted by Cambridge Systematics on behalf of the FHWA, FTA, NPS, the Bureau of Land Management (BLM), and the U.S. Fish and Wildlife Service, reported that many issues are addressed by the application of ATS, including transportation, resource preservation, economic and community development, tribal matters, and recreational needs. The study includes an assessment of ATS needs on federal lands to mitigate current and anticipated transportation challenges, and explores opportunities for securing implementation funding. The study contains an appendix addressing guidelines for a conceptual transit planning process.

- Proceedings from the 1999 conference on “National Parks: Transportation Alternatives and Advanced Technology for the 21st Century” (1999) reflect not only the broad sponsorship of this conference but of those in attendance as well, including private-sector vendors showcasing prototypes of relevant technologies. The Proceedings contain presentations as well as workshop summaries focused on regional transportation planning and coordination, traffic and demand management alternatives, transit alternatives (from shuttles to light rail), traveler and visitor information needs, and alternative fuels.
- “Tourist Transport Management,” an on-line digest of the Victoria Transport Policy Institute (2002), highlights case studies of transportation solutions to tourist automobile congestion. Included are Seattle’s “Car Smart” Communities (car-free getaway tour packages) and Acadia National Park’s Island Explorer shuttle service with advanced information systems. Also described is the city of Sedona, Arizona’s proposed transit solution to mitigate automobile congestion to and from Red Rocks State Park. This project has involved Sedona, two counties, the Coconino National Forest, the Northern Arizona Council of Governments, the Arizona DOT, and the Community Transportation Association of America. Finally, it discusses Miami’s proposed South Beach shuttle system, designed to serve the national historic district as well as other destinations in South Beach, Florida. This project includes pedestrian and bikeway improvements and the development of promotional and marketing materials on new mobility options for Miami Beach.
- Access to Acadia National Park was examined in *Bangor to Trenton Transportation Alternatives Study, Phase I* (2001), a Maine DOT study that had the stated objective “to create an integrated, multi-modal passenger transportation system in Maine that supports and promotes tourism.” The Phase I study explored alternatives for car-based travel between Bangor and Trenton, a heavily traveled 50-mile corridor carrying predominantly tourist and recreational travelers between I-95 and Mt. Desert Island, home of Acadia National Park. This study was one piece of the “Explore Maine” initiative implemented by the Maine DOT. The goal of “Explore Maine” is to create a network of travel options that do not require a car. Three destination packages (Acadia, Freeport, and the Western Mountains) have been designed in a setting of public-private passenger transportation solutions involving intercity bus, chartered motor coach, rail, and international ferries.

TRANSPORTATION FACILITIES AS SCENIC ATTRACTIONS

In addition to serving traveler movements, transportation facilities can function as attractions in their own right. The

primary example of this is the scenic byway, which is typically a rural road that serves as a scenic attraction as well as a travel route. Much of the scenic byways literature has focused on documenting potential demand for proposed facilities and then measuring the impacts of completed facilities. Representative studies relating to scenic byways include the following:

- *Valuing Changes in Scenic Byways—VT Pilot Study* (Tyrrell and Devitt 2000), a study for the Vermont Agency of Transportation, specifies an econometric modeling approach to measure the effect of different design elements of various road features along scenic byways on travelers willingness-to-pay. The report was designed to help guide future efforts of road designers and engineers in context-sensitive design that would be desirable for road users. This study measured the willingness-to-pay of various traveler segments, including leisure visits from both in- and out-of-state travelers, as well as the personal travel of area residents.
- *Holmes County Scenic Byways: The Value of Viewshed—Economics and Related Aspects of Signage* (Strouse 1999) is a study from Ohio State University. It assesses the impact that signage management and “viewshed” preservation have on tourists’ willingness-to-pay.
- *Scenic Byway Development on the Oregon Coast—Economic Benefits and User Preferences* (1990) is an Oregon DOT corridor study. It was the basis for the eventual development of a master plan along Oregon’s Coastal Highway, US-101. The report examined possible changes in direct visitor (nonresident) expenditures for the year 2000 under four different scenic highway scenarios involving differing degrees of corridor development along the coast.
- *Scenic Byways Data Needs, Resources, and Issues* (Smith 1990) is a primer on data for evaluating scenic byways. This report defines the specific data that needs to be collected for different decision-making considerations, which depends on whether the objective is to support scenic byways designation of a given route, to design enhancements to the route, or to evaluate a scenic byways route nomination based on either the attributes of the road or potential economic impact of attracting visitors. The author stresses the need for transportation and tourism interests to work together to collect needed data to better support current and future scenic byway research.
- *Economic Analysis of Scenic Byways in Iowa, Kansas, Missouri, and Nebraska* (Olson and Babcock 1991) is a Midwest Transportation Center study illustrating how a travel demand and supply analysis model can be calibrated specifically to the scenic byway user travel segment. In this econometric model, the incremental increase in visitor trips owing

to scenic route designation is estimated by considering traffic trends, cyclical economic factors, known seasonal factors, and a component for traffic movement changes not explained by the other three factors. The latter aspect is thought to capture the response to design elements of the route and promotional success.

- *Scenic Byways as a Rural Economic Development Strategy—The Development of a GIS Model of Tourism and Recreation in Montana* (Thompson et al. 1995) applied traffic analysis models to forecast trip and visitor spending impacts for a future year under alternative scenarios regarding the various assumptions concerning traffic, marketing, visitor expenditures, and tourism capture rates associated with the new designation of US-89 as a scenic byway.
- *Identifying, Evaluating, and Preserving Minnesota's Historic Roadside Facilities* (Walton and Anderson 2003) examined the eligibility of 102 properties throughout the state for the National Register of Historic Places. The study, on behalf of the Minnesota DOT, found that 51 of these roadside facilities, including scenic overlooks, hiking trails, picnic areas and historic markers, and one district are eligible for the register based on two sets of evaluations. The Minnesota DOT is preparing planning documents to address preservation (in light of other potential development pressures or planning activities), rehabilitation, and maintenance for these sites and to tap eligible funding sources.

All of these literature examples focus on scenic roads because they simultaneously represent transportation access routes as well as visitor attractions. There are also cases of scenic railroads, bikeways, and hiking trails around the country; however, they have primarily been planned and implemented as recreational or tourist attractions, rather than jointly as transportation facilities.

INFORMATION SYSTEMS AND OTHER TRAVELER SUPPORT SERVICES

Information centers, welcome centers, and information displays are all ways in which visitors can be informed and guided to use appropriate travel routes and transportation facilities. Many articles have summarized the characteristics of such information projects. Several representative examples of this type of article are provided here.

- *Regional Transportation Connector Newsletter* (2000, 2001) is the National Association of Development Organizations on-line newsletter. It showcases state and regional projects with multi-agency collaboration and with tourism relevance, including “511 Virginia,” the Northern Shenandoah Valley Re-

gional Commission’s ITS project. First implemented in the spring of 2000, with the help of the Virginia DOT (VDOT) and the Virginia Tech Transportation Institute, it features a traveler information service that provides tourist site information along the I-81 corridor that can be accessed by telephone. The research also showcased the unique role of New Mexico’s rural Council of Governments to spearhead transportation solutions to better service remote areas for residents and visitors. Finally, it has showcased how the South Central Council of Governments (and affiliated regional planning organization) has proposed creating a scenic byway loop to strengthen the base for economic development opportunities and provide experience in building regional partnerships.

- *WTI Newsletter* (2003) from the Western Transportation Institute presents recent developments for traveler information systems and other visitor information resources. Included is the “511” implementation for Montana and the deployment of information kiosks for the Greater Yellowstone area. These are discussed in chapter three under case studies pertaining to “Visitor Information Products and Services.”
- *511 Case Studies: Kentucky* (Schuman and Walden 2000) traces the early planning stages and coordination efforts to transfer two of the more essential transportation caller services offered by the Kentucky Transportation Cabinet to a 511 traveler information service. The Advanced Regional Traffic Interactive Management and Information System coupled with the Traffic Advisory Telephone Service, and the *Kentucky Road Report* were the first of 10 transportation traveler services to be converted over to the 511 system. The ultimate vision is that Kentucky would establish four metropolitan/regional 511 systems and all four would connect into a statewide system for the *Kentucky Road Report*.
- “Travel Shenandoah: Lessons Learned in a Public/Private ATIS Partnership” (Cross 2000) examines how VDOT, Virginia Tourism Corporation, Virginia Tech, and the Shenandoah Telecommunications Company implemented a rural pilot advanced travel information services (ATIS) program seeking to minimize traffic problems associated with the widening of I-81 through the Shenandoah Valley and, second, improve dissemination of travel information to residents, tourist and business travelers, and motor freight carriers. Information would be available on demand through landlines, cellular phones, websites, cable television, radio, variable messaging signs, and subscription-based technologies (such as pagers.) Six classes of information were chosen for the ATIS—travel alerts; traffic and travel conditions; travel services; tourism, attractions, events; emergency services; and route guidance. The decision to distribute specific types of travel information through the me-

dia was a deliberate part of the business model construct designed for multiple revenue streams to be generated, thereby guaranteeing sufficient funding for the ongoing maintenance of the ATIS system. Seven key lessons were highlighted from the implementation of this rural ITS project:

- Flexibility of partnering relationships;
- Investment in data collection and maintenance;
- Value of rapid prototyping and staged development;
- Working with stakeholders;
- System design should consider multiple markets, delivery modes, and revenue streams;
- Design systems suited for their particular geography; and
- Plan a system based on realistic financial objectives.

RESEARCH ADDRESSING SPECIFIC TRAVELER GROUPS

Understanding the demographics of the current pool (and potential) of visitors to a region is crucial to many tourism-oriented functions (e.g., marketing and developing visitor information resources), as well as to managing existing and planning for transportation facilities that link visitors to attractions throughout the region. There are many traveler segments that may be of particular relevance to the composition of a region's visits (e.g., international visitors, empty-nesters, and the elderly) and an understanding of any special needs or the group's travel behavior and preferences can assist in more successful tourism outcomes and transportation solutions that offer greater safety and accessibility. Two studies are included here that address the travel needs and preferences of the elderly and the physically challenged. Two additional modeling studies are also briefly mentioned here; however, the highlights of their findings are presented as case studies in chapter three, under "Data Analysis and Evaluation."

- "Accessible Tourism: Transportation to and Accessibility of Historic Buildings and Other Recreational Areas in the City of Galveston, Texas" (Sen and Mayfield 2003) examines the unique characteristics of this barrier island destination with many historic buildings [not yet Americans with Disabilities Act (ADA) compliant] and the challenges to provide access to and into these sites. Travel to the island is predominantly by automobile and few transit options exist that can serve the disabled. A projection of tourist visits segmented by different groups will help to define the need for public transit capable of serving those with physical mobility limitations.
- "Departure Time Choices for Recreational Activities by Elderly Nonworkers" (Okola 2003) examines flexible travel behavior of the elderly through a discrete choice modeling analysis. Using national data

from the Nationwide Personal Transportation Survey (1995), and focusing on suburban and rural travel, the modeling confirmed that the elderly do exhibit different travel preferences from the nonaged population for nonwork trips (e.g., the elderly prefer early morning travel). Such findings may be useful to those areas seeking transport alternatives for their elderly visitors who would otherwise arrive by car.

- Also relevant to this category of literature are "Transportation Modeling for the 2002 Winter Olympic Games" (Kaczorowski 2003) and "Optimization of a Feeder Bus Service to Sandy Hook" (Cardone and Myers 2003). Both are presented in chapter three as case studies, under "Data Analysis and Evaluation," of analyses contributing to advancing the knowledge base required to better plan transportation resources for special events or recreation destinations.

INTERAGENCY COLLABORATION IN TRANSPORTATION PLANNING PROCESSES

One of the challenging aspects of tourism and transportation planning is the potential complexity involved in bringing a variety of federal, state, regional, and local parks, and recreation and tourism agencies into a collaborative transportation planning process. A variety of studies have taken on the general topic of interagency collaboration. Key studies include the following:

- *NCHRP Report 419: Tourism Travel and Transportation System Development* (Frechting et al. 1998) identified the current state of practice in coordinating and integrating statewide transportation system development with tourism program goals. It provided an overview of the wide variation in the degree of dialogue occurring between state DOTs and state tourism and recreation agencies within the statewide transportation planning process. It also reviewed the limited track record of tourism-related transportation projects that have been undertaken and completed through a collaborative process.

NCHRP Report 419 created a framework for evaluating different types of institutional arrangements that may exist in a given state. This framework also represents a means for understanding how the nature of working relationships can facilitate or hinder joint projects between state transportation and tourism agencies. Additionally, the report identified three major areas where tourism objectives can best be integrated into transportation system development: policy coordination, the transportation planning process, and project development. The researchers presented principles to guide these three activities and promote stronger interagency coordination of

tourism travel issues in statewide transportation planning. The use of these guidelines was reexamined 4 years later and the results are shown in chapter three.

- *NCHRP Synthesis of Highway Practice 286: Multi-modal Aspects of Statewide Transportation Planning* (Peyrebrune 2000) explores state-level multi-modal planning practices with respect to alternatives identified, resultant modal mixes, and degree of integration into three aspects of the planning process—state planning, corridor studies, and the financing/budgeting/programming process. A key finding from this study is that involvement of customers and stakeholders of the transportation system is necessary to identify the range of mobility needs (e.g., goods or passenger movement, resident or visitor trip) that any multi-modal planning process should begin with. It also shows why the multi-modal planning process can prosper under directives concerning sustainable land-use or economic development goals.

Although this research does not specifically focus on tourism and transportation planning it is highly relevant to that topic. A crucial part of the dialogue to integrate tourism travel concerns into state and regional transportation planning processes and decision making involves multi-modal solutions. Not only is this consistent with the intent of federal legislation and guidelines, but a growing number of tourism regions are constrained in their capacity to handle more visitors arriving by car owing to land scarcity or concerns over environmental degradation and quality of life. (The previously reviewed studies of transit at national parks illustrate such situations.) Therefore, planning that considers transit, ferries, rail, air, bicycle, and pedestrian facilities (in addition to roads) can be quite relevant for the process of integrating transportation and tourism and recreation planning.

- *NCHRP Synthesis of Highway Practice 297: Building Effective Relationships Between Central Cities and Regional, State, and Federal Agencies* (Schaller 2001) provides examples of multi-agency transportation projects to show how organizations with different mandates, jurisdictions, constituents, and authority have cooperated and collaborated. Although its' focus is on central city transportation systems in the largest metropolitan areas, the issues of multi-agency coordination can apply anywhere. The study recommends guidelines for improving intergovernmental coordination in the face of various political and jurisdictional barriers.

Two of the nine case studies in *NCHRP Synthesis of Highway Practice 297* pertain specifically to tourism. One is the Walk Philadelphia/Direction Philadelphia signage project that involved the FHWA,

state DOT, and local organizations (nonprofits, city business associations, and Philadelphia's Commerce and Streets departments). The other case study is the Woodward Avenue Heritage Route, a combined corridor revitalization, historic preservation, and road improvement project in Detroit. This latter project was undertaken to spur economic development and tourism while also preserving historic and cultural assets. Coordination by the state DOT, 2 counties, 11 cities, the MPO, 2 nonprofits, and 1 business association made this project possible.

- “Working Together on Transportation Planning—An Approach to Collaborative Decision-Making” (NACE 1995) was developed by the National Association of Regional Councils as an exploration of innovative methods of enhancing public- and private-sector participation in the MPO transportation planning process. This study is process-oriented and focuses on the development of long-range plans or transportation improvement plans. It describes strategies for the MPO to engage the public and concludes, after a review of case studies, that MPOs that have had the greatest success in effective public participation programs got there by first developing a public participation plan tied into the long-range planning and decision-making process.
- *Implementation Strategies for the NH Route 16 Corridor Between Ossipee and Conway, NH* (2002) highlights a robust process undertaken by the Lakes Regional Planning Commission of how public and multi-jurisdictional participation affected the New Hampshire DOT’s State Transportation Improvement Plan. Detail is presented as a case study in chapter three, under “Multi-Agency Coordination.”
- *NCHRP Synthesis of Highway Practice 267: Transportation Development Process* (Mickelson 1998) charts the evolution of the transportation development process from the initial “3C” paradigm (continuous, coordinated, and cooperative) in the early 1960s to the subsequent federal requirements (e.g., environmental, and cultural, historic, and biological preservation), emphasizing ISTEA legislation that went into effect in the early 1990s. This study examines how different states and regions are currently adjusting to the requirements of ISTEA as they plan new highway facilities (or improvements) and transit projects.
- *NCHRP Synthesis of Highway Practice 217: Consideration of the 15 Factors in the Metropolitan Planning Process* (Humphrey 1995) examines the successes and challenges of a sample of MPOs in fulfilling the 15 required planning factors 3 years after these ISTEA requirements went into effect. The study’s findings were drawn from interviews with 16 MPOs around the nation, from larger and smaller jurisdictions, and with diverse air quality ratings

among those classified as transportation management areas. Early consensus was that although MPOs must deal with numerous requirements, ISTEA's emphasis on improved planning (with dedicated resources available to do so) is a positive goal, along with fiscally constrained plan development (implying efficiency) and a commitment to existing highway and transit infrastructure through preservation programs. The opportunity for a greater role in state- and federal-level decision-making processes was a benefit also reported by the MPOs. The stated needs arising during this early stage of ISTEA implementation included technical assistance from state DOT and federal staff to assist MPOs in meeting the ISTEA objectives fully and effectively and resources to update technical models and data no longer adequate for the

type of analysis now required in a more comprehensive planning environment. Case studies documenting progress on each of the 15 factors are included for Albany, New York; Boston, Massachusetts; Charlotte, North Carolina; and Pittsburgh, Pennsylvania. The study also examined a case study of how the Wisconsin DOT is meeting the 23 factors required of state DOTs in the ISTEA legislation.

Altogether, the literature cited in this report should be viewed as a cross section of issues being faced by local, state, and federal agencies and local stakeholder groups. They reflect the range of transportation applications in which transportation investments can represent either a form of access support for separate tourism attractions or as simultaneous access routes and scenic attractions on their own.