

Transportation Partnerships in the Parks

Cooperative Initiatives Serve Visitors, Preserve the Environment

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Exploring national parks and other federal lands is a major pastime for Americans and foreign visitors. From horses to railroads, to open-topped touring coaches, to automobiles, to ferries, to hiking and biking, transportation always has been an integral part of park visits. Congested roadways, overcrowded parking lots, exhaust fumes, and vehicles blocking scenic vistas, however, detract from the park experience.

Visitors to many of the more popular parks this summer have encountered new travel options, with expanded service on shuttle bus systems and ready information about transportation conditions and alternatives. These improvements represent the coordinated efforts of federal land management and transportation agencies, state governments, local communities, foundations, businesses, and other groups. Working together, these organizations are

addressing critical transportation needs, providing options for travelers, and enhancing visitors' experiences, while preserving and protecting the natural features of the parks.

Shuttles in the Parks

Red and yellow touring coaches gained fame serving visitors to many western parks in the 1930s and 1940s. In Montana's Glacier National Park, red "jammer" buses still transport visitors, thanks to the combined efforts of Ford Motor Company, concession operator Glacier Park, Inc., and the National Park Foundation (NPF). In the 1970s, bus service was introduced in Grand Canyon National Park and in a few other parks to address traffic congestion.

The Transportation Equity Act for the 21st Century (TEA-21) requested a comprehensive study of alternative transportation needs in national parks. Five parks hosted transit demonstration projects: Acadia in Maine, Golden Gate and Yosemite in California, Grand Canyon in Arizona, and Zion in Utah. Different service strategies were considered for each.

Implementation of the shuttle bus systems at Acadia and Zion advanced more quickly than those at the three other parks and are in a sixth year of operation. In addition, new shuttle bus systems have been introduced at Rocky Mountain National Park in Colorado, Utah's Bryce Canyon National Park, Fort Clatsop National Park in Oregon, and Virginia's Colonial National Historic Park.

Exploring the Maine Coast

Introduced in 1999, the Island Explorer shuttle bus has become an integral part of the transportation system in Maine's Acadia National Park. The Island Explorer is free and optional, operating during the peak summer season.



Acadia National Park's implementation of intelligent transportation system (ITS) technologies—including Global Positioning System (GPS), automatic vehicle location, and automated passenger counting—helped Island Explorer buses maintain quality service during a period of intense ridership growth. From 1999 to 2002, ridership doubled from 140,931 to 281,142.

In the first year, eight propane-fueled buses operated on six routes, linking hotels and businesses with major park destinations. In response to the popularity of the Island Explorer, a seventh route and nine more buses were added in 2000. Service was extended from Labor Day to mid-October in 2003, and an eighth route was introduced for the 2004 summer season.

As part of a federal Intelligent Transportation Systems (ITS) Field Operational Test, Island Explorer buses are equipped with automatic vehicle location systems, which provide real-time information on the location of the buses. Visitors can check on the status of Island Explorer buses on the Internet and at major stops, and the information is updated every 3 minutes.

Island Explorer ridership grew from 142,000 in 1999 to 340,336 in 2003. Ridership in 2003 represents a 21 percent increase over 2002 totals, primarily attributable to the extension of service into October. The Island Explorer serves visitors and residents, with an average daily ridership of 4,145 passengers during the peak summer months. Annual passenger surveys continue to show strong support.

The Island Explorer is a cooperative effort of the National Park Service (NPS), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Maine Department of Transportation, the Mount Desert Island towns, Friends of Acadia, L.L. Bean, regional organizations, local businesses, Downeast Transportation, Inc., and other groups. L.L. Bean was the sole corporate underwriter for the Island Explorer in 2003 and was instrumental in extending the service.



PHOTO: FRANK CORRADO FHWA-FHLD

Island Explorer ITS at Acadia National Park applied a GPS relay to provide real-time arrival and departure times to visitors via electronic displays at bus stops, as well as website postings.

The park entrance fee increased in 2004, with \$10 from every weekly and annual pass allocated to a special account to support the Island Explorer. Acadia is one of the parks approved by federal legislation to collect a transportation fee for the support of public transit services.

Pioneering with Lewis and Clark

The Lewis and Clark Expedition reached the Pacific Ocean in November 1805. Traveling by birch-bark canoes, the expedition established a winter encampment south of the Columbia River. This summer, the Explorer shuttle bus system began transporting visitors to the Fort Clatsop National Memorial at the encampment site.

Planning for the shuttle bus system started in 2001 with concerns that visitors would overwhelm the site's limited parking during the 2003 to 2006



The Explorer buses shuttle passengers from Fort Clatsop, Oregon, to lodging, mass transit, and parking.



Historic Triangle Shuttle connects Colonial Williamsburg to Jamestown and Yorktown, Virginia.

Lewis and Clark Bicentennial celebration. Public workshops, charettes, and meetings with local agencies, organizations, and groups highlighted the planning process.

The Explorer shuttle bus represents the coordinated efforts of NPS, the Sunset Empire Transit District (SETD), FHWA Federal Lands Highway Western Division, the Lewis and Clark Bicentennial in Oregon, the Lewis and Clark Bicentennial Association, local businesses, and other organizations. Initiated during the 2004 summer season, the four Explorer shuttle bus routes link Fort Clatsop with SETD and Pacific Transit routes, Amtrak, park-and-ride lots, local hotels, campgrounds, and other stops.

From June 14 through Labor Day, the parking lot of the Fort Clatsop visitor center is accessible only to the Explorer shuttle buses. Visitors can purchase a time-ticket, which serves as a three-day pass on the shuttle.

Shuttling to the Colonies

The Historic Triangle Shuttle debuted this summer in Virginia at the Colonial National Historic Park sites—Historic Jamestowne, Jamestown Settlement, Yorktown Victory Center, and Yorktown Battlefield—and at Colonial Williamsburg. During the peak summer months, the Historic Triangle Shuttle provides service along Colonial Parkway from the Colonial Williamsburg Visitor Center; one route serves Jamestown and a second route serves Yorktown.

Visitors riding the shuttle can connect with the Jamestown Area Shuttle, also newly introduced, and with the Yorktown Trolley. Rides on the Triangle Shuttle service are free for ticket-holders to any of the four historic sites.

The new seasonal services, initiated as a demon-

stration project, are part of a cooperative agreement between NPS, Colonial Williamsburg, and Williamsburg Area Transport. The Association for the Preservation of Virginia Antiquities, the Jamestown-Yorktown Foundation, and York County are providing additional assistance. The Historic Triangle Shuttle represents a first step in preparations for 2007, the 400th anniversary of the founding of Jamestown.

Other Projects

Taking Off

The North Carolina Department of Transportation (DOT) sponsored free bus service during the 6-day First Flight Centennial Celebration at the Wright Brothers National Memorial in Kill Devil Hills. No public parking was provided at the memorial during the celebration, December 12 through 17, 2003.

A multiagency committee started planning the transportation elements of the celebration 2 years in advance. In addition to shuttle buses, the Centennial Celebration transportation plan addressed traffic management, traffic control, parking for dignitaries, and emergency medical services response.

Five shuttle routes served special park-and-ride lots, lodgings, and designated stops. The department contracted for the use of 140 coaches and 30 smaller buses, including lift-equipped vehicles for individuals with special needs.

Bus-only lanes and other traffic measures helped manage traffic at the memorial. Although rain forced the relocation of one park-and-ride lot during the first days of the celebration, the shuttle bus system worked well, serving 30,000 of the 35,000 visitors during the peak days.

Heart of the Park

A weekend Heart-of-the-Park shuttle bus will travel California's Santa Monica Mountains National Recreation Area starting in November. The demonstration project is a response to needs identified through an extensive visitors survey, follow-up public meetings, and focus groups.

Service will be hourly on four routes. The buses will be equipped to carry mountain bikes, surfboards, and hiking gear.

The routes connect park-and-ride lots with major park destinations, as well as with Los Angeles Metropolitan Transportation Agency routes and other bus services. The shuttle bus will relieve traffic congestion on park roadways and provide residents and visitors with access to park destinations.

Service Enhancements

Seasonal shuttle services operate in the parks at Zion, Yosemite, Bryce, Rocky Mountain, and Cape Cod, and a year-round shuttle bus system serves Grand Canyon. These shuttles have received service enhancements, and ridership continues to grow.

Several park websites are displaying improved transit maps. Developed for NPS by the Volpe National Transportation Systems Center, Cambridge, Massachusetts, the maps satisfy federal guidelines for providing information to individuals with special needs and meet FTA specifications for transit websites.

Urban Park Innovations

National parks, monuments, and historic sites in major metropolitan areas raise special transportation concerns. Many of these parks are in busy downtown areas. Adding 2 to 4 million visitors a year to the already congested transportation systems in Washington, D.C., Boston, Philadelphia, New York, and San Francisco presents unique challenges. Heightened safety and security concerns have closed roads in some areas and added special screening facilities in others.

The institutional arrangements also are complicated, with a multitude of state, regional, and local agencies and authorities responsible for the roadways, public transportation, and parking systems. In part-

nership with these area organizations, urban parks are dealing with the issues in unique and innovative ways.

Ringling the Bell

Considered the birthplace of the nation, Independence National Historic Park occupies 45 acres in downtown Philadelphia, about 20 city blocks. The park includes the Liberty Bell Center, Independence Hall, the National Constitution Center, the Independence Visitors Center, and other historic buildings. Additional historic sites, such as the Betsy Ross House, are located in districts around the park.

The urban location, bisected by busy six- to eight-lane streets, creates unique challenges related to safety, security, traffic congestion, and building maintenance. Approximately 40 percent of the annual 2.9 million visitors arrive by motor coach or school bus, but the buses contribute to traffic congestion and detract from the visitor experience. When the park general management plan was in development in the 1990s, residents of the adjacent neighborhoods voiced concerns about the buses.

The remaking of the mall and the construction of the new Liberty Bell Center, Independence Visitors Center, and the National Constitution Center provided the opportunity to address some of these concerns. The new buildings, wayfinding signs, and other enhancements unify the setting and enhance the visitor experience.



The new transportation center in Philadelphia provides bus parking to relieve traffic congestion at the city's historic sites.

The Independence Transportation Center addresses traffic congestion and motor coach parking. Opened in the summer of 2003, the center includes 11 spaces for motor coaches to drop off and pick up passengers. The center's lot, three spaces on an adjacent street, and five others throughout the historic district are the only authorized places for motor coach loading and unloading in the historic district. The Philadelphia Parking Authority enforces the motor coach restrictions, with violators facing \$250 fines.

A motor coach parking facility also opened in 2003 on a parcel of land acquired during the construction of Interstate 95. The lot includes 40 parking spaces and a drivers' lounge. Motor coach operators can use the facility for \$20 a day or \$30 with overnight parking. Motor coaches can come and go throughout the day.

The Independence Transportation Center and the motor coach parking facility represent the coordinated efforts of NPS, the city of Philadelphia, the Philadelphia Parking Authority, the Independence Visitors Center, the National Constitution Center, and other groups.

Viewing the Golden Gate

The 1,491-acre Presidio military facility in San Francisco was transferred to NPS in 1994. The Presidio is part of the Golden Gate National Recreation Area, the largest urban national park in the world.

Converting a site with some 800 buildings, a research facility, a golf course, a national cemetery, and a variety of recreational and community services in a dense urban environment into a national park is not easy. Congress established the Presidio Trust to lease and manage the site to help meet the requirement for a financially self-sufficient park by 2013. In 1998, the Trust assumed management of the noncoastal areas of the Presidio.



PHOTO: BRENDA THARP

A free shuttle service has operated in the Presidio, a section of the Golden Gate National Recreation Area in San Francisco, since 2001.

PresidiGo

Transportation is a key component of the 1994 General Management Plan Amendment and the 2002 Presidio Trust management plan. The Presidio Trust is developing a transportation system to improve mobility within the park, to increase the use of public transit and of pedestrian and bicycle options, to improve connections with regional transit, and to make travel easier without relying on automobiles. Started in 2001, the PresidiGo Shuttle bus is an integral part of the strategy.

A free shuttle system operated by the Trust, PresidiGo serves two routes 7 days a week. The system carries 5,000 to 7,500 riders per month and provides easy access to locations in the Presidio for visitors, employees, and residents. PresidiGo connects with services provided by San Francisco Municipal Transportation Agency (MUNI); Golden Gate Bridge, Highway, and Transportation District; and other local systems.

A special lunchtime shuttle operates on Tuesdays, providing employees with service to restaurants and stores along Lombard and Chestnut streets. Many stores and restaurants offer a discount to shuttle riders.

Transit Facility

A transit center is in development. The facility will replace a nonhistoric structure adjacent to the post office-bank and the Presidio Fire Department. Designed to complement the historic setting, the facility will include bus bays, passenger waiting areas, public restrooms, restaurant space, and a conference room. The center will serve as a focal point for PresidiGo service. MUNI and other transit providers may serve the center in the future.

The Presidio Trust also operates other services to encourage transit use, carpooling, bicycling, and walking. In addition to the Tuesday lunchtime shuttle, the Trust provides park employers and employees with a guaranteed ride home program, carpool and vanpool matching services, a bicycle-rack program, transit pass sales, and other commuter choice incentives; the Trust also participates in a car-sharing program. Presidio tenants must meet certain transportation demand management requirements.

Replacing a Link

Another transportation issue in the Presidio is the replacement of Doyle Drive, a 1.5-mile road linking the San Francisco Peninsula with the Golden Gate Bridge and Marin County. Constructed in 1936,

Riding with the Jammers

Although the drivers no longer jam the gears going up and down the steep terrain, and although the traffic is heavier, visitors riding the renovated red buses in Montana's Glacier National Park share the same experience as visitors in the 1930s and 1940s. Through the coordinated efforts of the National Park Service, the National Park Foundation (NPF), Ford Motor Company, concessionaire Glacier Park, Inc., and other groups, the 33 historic White Motor Company red buses continue to serve park visitors today.

Introduced in 1936 and 1937, the red buses quickly became a popular way to see Going-to-the-Sun Road and to reach lodges and other destinations in the park. The red buses were removed from service in 1999 because of safety concerns over structural soundness and metal fatigue.

The restoration of the red buses required the collaborative effort of several groups, funding from Ford through the NPF Proud Partners program, and the application of innovative technologies. The red buses received new chassis, propane-gasoline fuel systems, new bodies, new interiors, and environmentally friendly red paint. The renovated red buses returned to Glacier in 2002.



National Park Service and Federal Highway Administration are investigating potential vehicles for shuttle service in Glacier National Park, as a complement to the interpretative tours given by the refurbished red buses (left). Two prototypes include a hybrid electric vehicle (center) and a wheelchair-compliant, propane-fueled bus (right).

The historic vehicles, the dramatic scenery, Going-to-the-Sun Road, and the drivers—or “jammers,” as they are known locally—make a ride on the red buses a unique experience. The renovation has maintained the historic features of the buses, which seat 17 passengers—four per row and one next to the driver. Individual doors allow easy access to each row of seats. Blankets are provided as in the past to ward off the cold.

The canvas top rolls back for an open view of the mountains. The top can be closed quickly in rain and reopened when the sun comes back out.

The scenic beauty of Glacier, of course, is the main attraction. The mountains, lakes, forests, alpine meadows, and waterfalls make the ride unforgettable.

The 50-mile Going-to-the-Sun Road is one of the great alpine roads in the world—an engineering feat, honored as a National Historic Landmark. Opened in 1932, the road crosses the continental divide and links the east and west sides of the park.

Finally, the jammers add a valuable ingredient to the red bus experience. Jammer Joe, this author's driver, is a semiretired farmer from Illinois; he spends his summers in Glacier. He provides his passengers with a mix of history, geology, jokes, and tips on things to see.

The scenic, interpretive red bus tours are operated by Glacier Park, Inc. Adult fares range from \$25 to \$65, depending on the length and location of the tours.

Even if you do not take a trip on the red buses, seeing them in the park adds to the overall visitor experience. Like the park's lake boat tours and Going-to-the-Sun Road, the red buses continue the legacy of Glacier's unique transportation system.



Historic White Motor Company red bus along Going-to-the-Sun Road.

—Katherine Turnbull

Doyle Drive is the major north-south approach of US-101 to the Golden Gate Bridge, carrying 144,000 weekday travelers, including 17,000 via transit.

The San Francisco County Transportation Authority is the lead agency in the Doyle Drive project, in cooperation with California DOT and FHWA. Other local and regional agencies and organizations, including the Presidio Trust, are involved in the interagency working group.

An active public and community involvement process includes a Doyle Drive subcommittee, community workshops, open houses, a website, project information materials, public hearings, and other outreach efforts. A recommended alternative is expected to be available for public review and comment in early 2005.

Other Urban Activities

Activities are also under way at other urban parks, historic sights, and monuments:

- ◆ Weekend ferry service from Manhattan to Jacob Riis Park on the Rockaway Peninsula in Queens, New York, started this summer. Developed, funded, and operated through the coordinated efforts of NPS, NPF, Ford, N.Y. Waterway, and local agencies, the ferry links with a free shuttle bus serving sites in the Gateway National Recreation Area on the peninsula.

- ◆ A study is examining transportation services for the National Mall, memorials, and surrounding parks in Washington, D.C. The contract with Tourmobile, which has been serving visitors to the Mall since 1969, expires in 2007, and the study is exploring alternatives.

Park Scholars

Two unique programs are providing additional resources to address transportation issues in national parks. Both efforts are part of NPF's Proud Partners of America's National Parks program. Ford Motor Company, one of the Proud Partners, is funding both programs.

The National Park Transportation Scholars Program represents the coordinated efforts of Ford, NPF, NPS, and the Eno Transportation Foundation. The program places graduate students and transportation professionals with parks that need the expertise. In its fourth year, the program has supported 28 scholars, who receive a stipend and housing and spend 3 months to 1 year working in a park.

The participating parks and the types of projects that scholars work on are diverse. The parks and the scholars alike benefit from the program—the parks receive the expertise of the scholars, and projects advance at a faster rate; the scholars gain valuable experience, as well as the satisfaction of addressing critical needs of the park (see sidebar, page 21).

The National Parks Transportation Interpreters is the other National Parks Proud Partners program and is sponsored by NPF, NPS, the Student Conservation Association (SCA), and Ford. Started in 2000, the program assigns young adults, recruited through SCA, to the national parks to provide information on travel options. The program has grown each year, both in the number of interpreters and in the number of parks; 40 interpreters are working in 23 parks this summer.

Reauthorization

The Intermodal Surface Transportation Efficiency Act, TEA-21, presidential directives, and interagency agreements established programs and directions for transportation within national parks and public lands during the 1990s. The projects highlighted in this article—the shuttle bus systems, demonstration projects, alternative-fueled vehicles, ITS field operations tests, and other initiatives—are the result of these federal programs and agreements.

Future funding for transportation programs in the parks, as well as for new initiatives, is part of the TEA-21 reauthorization process. The Administration's Safe, Accountable, Flexible, and Efficient Transportation Equity Act (SAFETEA) of 2003; the House of Representatives bill, the Transportation Equity Act: A Legacy for Users (TEA-LU); and the Senate bill, SAFETEA of 2004, contain different funding levels for current programs.

All versions of the reauthorization legislation, however, would continue the transportation partnership concept. The Administration's recommendation includes the National Parks Legacy Grant program. The House bill includes a Transit in the Parks (TRIP) pilot program, and the Senate bill contains a roughly comparable provision addressing alternative transportation in parks and public lands.

Pointers for Success

The shuttle bus systems, ITS projects, and other innovative transportation approaches are providing benefits to park visitors, the environment, and to gateway communities and adjacent neighborhoods. Shuttle bus riders report positive experi-

Scholars Grow in the National Parks

The National Park Transportation Scholars come from diverse backgrounds and disciplines. All share a common interest in helping improve park transportation.

Susan Law received a joint master's degree in civil engineering and city planning from California Polytechnic State University in 2002. She has spent almost 2 years as a scholar in Montana's Glacier National Park. Law has assisted with projects examining alternative fuels, intelligent transportation systems, internal circulating routes, and shuttle services during the rehabilitation of the Going-to-the-Sun Road.

Law's most recent project is the shared red bike program for employees at Glacier. A \$9,000 grant from the Glacier Foundation funded the purchase of 20 bicycles, one industrial tricycle, and the necessary helmets, locks, racks, and horns. Stored at strategic locations in the park, the bicycles provide an alternative to the automobile for short trips by park staff.

"Planning alternative transportation solutions at Glacier has been a challenging and rewarding experience," Law reports. "The scholars program provides a unique opportunity to combine my professional skills in transportation planning and engineering with my personal interest in sustainability to make a positive contribution to the park."

Lucas Cruse received a master's degree in urban and regional planning from the University of Illinois—Champaign in the spring of 2003 and started as a scholar at New Mexico's Pecos National Historic Park that August. The park includes the site of the Civil War Battle of Glorieta Pass.

Cruse is developing a transportation plan for the battlefield, which is divided by a highway. Efforts to address the transportation issues in the battlefield have been under way for some 30 years. Cruse is arranging meetings among the agencies and groups involved, drafting a cooperative agreement for the agencies, and preparing a scope of services for the larger study, which includes alternative plans and public involvement.

"Working in Pecos on the Glorieta Battlefield transportation study has been an interesting and challenging experience," reports Cruse. "Helping advance the considerations of alternatives to the long-standing transportation issues in the area has also been rewarding."

Virginia Smith received a master's degree in city and regional planning from Rutgers University in New Jersey in spring 2004 and started as a scholar in California's Devils Postpile National Monument. She is examining funding options for the mandatory shuttle bus system that has served day visitors for 26 years.

Smith also is exploring the use of more environment-friendly vehicles and is assisting with regional coordination efforts. She will join a transportation consulting firm when she completes her term as a park scholar.

"It is an amazing opportunity to live and work at Devils Postpile," Smith says. "I see the benefits and the issues associated with the shuttle buses on a daily basis. I could not have asked for a better experience right out of graduate school."

Jonathan Upchurch is the newest scholar, starting at Colorado's Mesa Verde National Park this August. Upchurch brings 32 years of experience as an engineer, college professor, and staffer for the U.S. House of Representatives Committee on Transportation and Infrastructure. Active in TRB committees, he serves as chair of the Operations and Maintenance Group of the Technical Activities Council.

"Mesa Verde is facing a number of transportation issues," Upchurch observes. "Working on the comprehensive transportation plan, which includes examining alternative transportation systems, is a challenge."



Susan Law



Lucas Cruse



Virginia Smith



Jonathan Upchurch

—Katherine Turnbull

Making Tracks in Wildlife Refuges

SEAN FURNISS

Extending across the international date line from Guam to the Caribbean, across the equator from the Arctic Circle to the South Pacific, and across the continent from the north coast of Alaska to the Florida Keys, the National Wildlife Refuge System includes more than 570 refuges and wetland management districts. This diverse collection of approximately 96 million acres of lands and waters is dedicated to the conservation and management of the fish, wildlife, and plants of the United States.

Refuges provide habitat—food, water, shelter, and space—for more than 200 endangered species and for hundreds of other species of birds, mammals, reptiles, amphibians, fish, and plants. Refuges allow the observation of wildlife in natural settings and offer a variety of recreational activities that vary by location and season—such as hiking, automobile tours, bicycling, photography, wildlife observation, hunting, and fishing.

In 2003, the Refuge System received more than 39 million visitors, and by 2009, more than 50 million are expected annually. Visitation generates more than \$809 million per year to local and regional economies and supports more than 19,000 jobs nationwide. By 2009, visitation is expected to generate more than \$1 billion per year for local and regional economies and to create additional employment.

The Fish and Wildlife Service (FWS) contracted with the Federal Lands Highway (FLH) program to conduct an inventory and condition assessment of the public use road system in refuges and hatcheries. The assessment found that more than 37 percent of FWS roads were in poor to failed condition. In some cases, facility managers had to close roads because project engineers declared the bridges unsafe.

The FWS transportation network includes more than 4,800 miles of roads, 5,000 parking lots, 300 bridges, 2,550 miles of land and water trails, 65 trail bridges, 6 transit systems, and 2 ferry routes. These facilities are on more than 600 units of the National Wildlife Refuge System and National Fish Hatchery System.

More than 100 refuges, wetland management districts, and hatcheries are associated with 58 designated scenic byways in 28 states. In addition, 4 National Scenic Trails, 6 National Historic Trails, and 12 National Recreational Trails are associated with more than 70 refuges, wetland management districts, and hatcheries.



Bike riders take advantage of trails at Chincoteague in Virginia.



Tarpon Bay Tram provides guided tours of J.N. "Ding" Darling in Florida.



Russian River Ferry explores Kenai in Alaska.

The recent alternative transportation needs study by the Federal Highway Administration (FHWA) and Federal Transit Administration, in cooperation with the federal land agencies, identified transit needs at 13 of the 23 refuges examined. Among the transit services in operation are the trams and horse-drawn sleds at five national wildlife refuges: Florida's J.N. "Ding" Darling, Patuxent Research Refuge in Maryland, Chincoteague in Virginia, Wyoming's Elk Refuge, Santa Ana in Texas, and Colorado's Rocky Mountain Arsenal.

An independent concessionaire operates the Russian River Ferry in Alaska's Kenai National Wildlife Refuge. A cable-operated

ferry in Virginia's Presquile National Wildlife Refuge, however, has been closed to address safety and financial concerns.

In 1998, the Transportation Equity Act for the 21st Century established the first federal program to maintain and improve public use roads in the 101-year-old National Wildlife Refuge System. Approximately \$17 million were made available each year from 1999 to 2003 to fund the Refuge Roads Program.

In that time, FWS and FHWA undertook more than 650 improvement projects, worth \$79 million, to improve public roads and parking areas on FWS lands. Projects have varied in scope and size, with FHWA managing most of the larger projects. Projects have included rebuilding entrance roads and tour routes, rehabilitating and improving parking facilities, replacing bridges, installing safety signage, and conducting training sessions on the maintenance of gravel roads.

FWS roads and bridges pose many challenges: severe seasonal road conditions, prolonged submersion of roads, remoteness, limited work periods, wildlife concentrations, and inadequate road maintenance equipment. Another challenge is integrating transportation planning with the efforts of communities and states, most of which are familiar with FWS in its role of reviewing permits during project development but not in its role as a transportation agency.

FWS is working with FLH, America's Byways Resource Center, and the American Recreation Coalition to develop virtual tour routes of six national- and state-designated scenic byways. The public will be able to view highlights of the byways and associated refuges on the Internet. The beta phase of the project is scheduled for September.

The continued improvement of the FWS transportation network will facilitate public access and make driving conditions safer. FWS will conduct customer satisfaction surveys this fall to assess how well the improvements are meeting the needs of visitors.

Website

Fish and Wildlife Service: Public Use Roads, <http://refuges.fws.gov/roads/>

The author is National Coordinator, Refuge Roads Program, U.S. Fish and Wildlife Service, Arlington, Virginia.

ences and support for the services. Improved air quality, reduced noise, and the reappearance of wildlife have been documented in parks with shuttle bus systems. Residents of the neighborhoods surrounding Independence National Park have benefited from a reduction in tour bus traffic. Gateway communities have realized economic benefits from the new transit services.

These recent projects provide models for addressing transportation issues and opportunities in the national parks. There is no one best approach for addressing transportation needs in national parks, but successful park transportation projects have included partnerships; have built incrementally on the unique strengths of each park and on local expertise and funding; have blended old and new modes; and have documented the benefits.

◆ **Partnerships are integral to the success of transportation projects in national parks.** The projects highlighted in this article all involve some combination of federal, state, and local agencies, foundations, businesses, neighborhood groups, and other organizations. Working through the institutional arrangements can be difficult and time consuming, but experience indicates that the investment pays off.

No single agency or group has the resources or the expertise to address all the transportation issues facing national parks. Partnerships will continue to be critical in developing and operating successful transportation systems in the parks.

◆ **Successful projects build on the unique elements associated with each park and on working relationships with other agencies and organizations.** The 6-mile, dead-end roadway in Zion Canyon, for example, works well for the mandatory summer shuttle, but the same approach would not be logical in a park with multiple access points and roadways. Parks typically do not have staff experienced in developing and operating transit services but can take advantage of expertise available from local transit systems, which also can ensure coordination of park transit with regional transit service.

◆ **Successful projects have involved multiple sources of funding.** Funding is always an issue, especially for the operation of shuttle bus systems and other transit alternatives.

Traditional federal, state, and local programs will continue to supply a significant portion of project funds. Corporate and foundation sponsorship, dedicated park transit fees, new federal programs, and other

innovative approaches will play increasingly important roles in funding park transportation projects.

◆ **Introducing new shuttle systems and other transportation improvements in incremental steps is also a hallmark of many successful projects.** The systems build on early successes. Adding routes, expanding service hours, extending operating seasons, and making other improvements are easier with a successful core system.

◆ **Blending new services and technologies with historic park transportation elements is an important goal.** Park roads and bridges, touring coaches, and lodges built by the railroads are important components of the visitor experience in many parks. Successful projects balance new transportation systems with historical and cultural components.

◆ **Successful projects document the benefits.** Although some of these successful projects have not conducted extensive monitoring and evaluation programs, most have documented the benefits derived from new transit services and other transportation projects.

The annual surveys of Island Explorer riders, for example, have identified areas for service improvements, route extensions, and other enhancements. The results show strong support for the system and have been important in securing funding.

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